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I.—CAN THERE BE A NATURAL SCIENCE OF MAN?

I.

THERE were two elements in the system of popular ethics inherited from the last century, which were long thought incompatible with its complete reduction to the form of a physical science. These were the doctrines of free-will and of a moral sense. Each, however, was understood in a way which suggested to the naturalist a ready explanation of its supposed claim to lie beyond his sphere. The moral sense, according to the accepted view, was a specific susceptibility to pleasure or pain in the contemplation of certain acts. What was the quality in the acts which excited this pleasure or pain in the contemplation of them? If it were something in the conception of which any originative function of the reason was implied, then the existence of the moral sense would have meant that there was a determining agent in the inner life of man, of which no natural history could be given. But those writers who had made most of the moral sense had been very indefinite in their account of the quality in action to which it was relative. The most consistent theory on the subject was Hume's. According to him the pleasure of moral sense is pleasure felt in the "mere survey" of an act, independently of any consequences of the act to the person contemplating it, and that which occasions this pleasure

is the tendency of the act to bring pleasure to the agent himself or to others.[1] Moral sense, in short, is a social sentiment either of satisfaction in the view of such conduct as has been generally found to increase the pleasure or diminish the pain of others, or of uneasiness in the reverse, quite apart from any expectation of personal advantage or loss. It is thus properly not by the action of the person feeling it but by that of others that it is excited. An act of a man's own, necessarily proceeding, according to Hume, from some desire for pleasure which it satisfies or fails to satisfy, must have personal consequences for him, incompatible with that disinterested survey which alone yields the pleasure or pain of moral sense, properly so called. Sympathy, however, with the effect which he knows that his act produces on the moral sense of others, may modify the feeling which it causes to the doer of it. An act, in gratification of some passion, which he would otherwise look forward to as pleasant, may become so painful in anticipation from sympathy with the general uneasiness which he knows would arise upon the contemplation of it that, without any fear of punishment, he abstains from doing it.

Thus moral sense and sympathy jointly, as understood by Hume, serve plausibly to explain the office ordinarily ascribed to conscience, as the judge and possible controller in each man of his own acts. At the same time the lines are indicated along which a physical theory of "conscience" might be logically attempted. The problem which Hume bequeathed to a successor who adopted his principles was mainly to account for the two-fold fact, that the mere survey of actions as tending to produce pleasures, in which the contemplator will have no share, is yet a source of pleasure to him; and that among the pleasures taken into account in that estimate of the tendency of an action which determines the moral sentiment are such as have no direct connexion with the satisfaction of animal wants. A theory, which will account for this, will also account for the affection of the agent by sympathy with the sentiment which the contemplation of his action excites in others. Can we find any scientific warrant for believing in a process by which, out of susceptibility to pleasures incidental to the merely animal life, have grown those capacities for enjoyment which we consider essential to general well-being, and those social interests which not only make the contemplation of general well-being an independent source of pleasure, but also make the pleasure of exciting this pleasure—the pleasure of satisfying the moral sentiment of others—an object of desire so strong as in many cases to determine action? If we can, it would seem that we

[1] *Treatise on Human Nature*, Book III., Pt. i., §§. 1, 2, and Pt. iii. §. i.

have given to our national system of ethics—the ethics of moral sentiment—the solid foundation of a natural science.

It is no wonder, therefore, that the evolutionists of our day should claim to have given a wholly new character to ethical inquiries. In Hume's time a philosopher who denied the innateness of the moral sentiments, and held that they must have a natural history, had only the limits of the individual life within which to trace this history. These limits did not give room enough for even a plausible derivation of moral interests from animal wants. It is otherwise when the history may be supposed to range over an indefinite number of generations. The doctrine of hereditary transmission, it is held, explains to us how susceptibilities of pleasure and pain, of desire and aversion, of hope and fear, may be handed down with gradually accumulated modifications which in time attain the full measure of the difference between the moral man and the greater ape. Through long ages of interaction between the human organism and the social medium in which it lives, there has been developed that "sensibility of principle which feels a stain like a wound"; that faculty of moral intuition which not only pronounces unerringly on the social tendencies of the commoner forms of human action, but enables us in some measure to see ourselves as others see us; that civil spirit through which the promptings of personal passion are controlled even in the individual by the larger vision and calmer interest of society. Thus it would seem that for the barren speculation of the old metaphysical ethics we should seek a substitute in a scientific "Cultur-geschichte"; in a natural history of man conducted on the same method as an inquiry into any other form of life which cannot be reduced to the operation of strictly mechanical laws. For the later stages of this history we have, of course, abundant materials in the actual monuments of human culture —linguistic, literary, and legal—and these, the physiologist may say, have yet to be considered in connexion with the data which his own science furnishes. It is true that, however far they carry us back, however great the variations of moral sentiment to which they testify, they do not bring us to a state of things in which the essential conditions of that sentiment were absent. The most primitive man they exhibit to us is already conscious of his own good as conditioned by that of others, already capable of recognising an obligation. But the theory of descent and evolution opens up a vista of possibilities beyond the facts, so far ascertained, of human history, and suggests an inquiry into the antecedents of the moralised man based on other data than the records which he has left of himself. Such inquiry, it is thought, will in time give us the means of reducing the moral

susceptibilities of man to the rank of ordinary physical facts, parts of one system, and intelligible by the same methods, with all the natural phenomena which we are learning to know. Man will then have his ascertained place in nature, as perhaps the noblest of the animals but an animal still.

When the moral sentiment has been explained on the principles of natural science, free-will is not likely to be regarded as presenting any serious obstacle to the same mode of treatment. By those of our national philosophers who have asserted its existence, it has generally been understood as a faculty of determining action apart from determination by motives; as a power, distinct alike from reason and from desire, which chooses between motives without being itself dependent on any motive. So crude a notion must long ago have given way before the questions of science, if there had not been a practical conviction behind it which it failed fairly to interpret. What after all, it is asked, is any faculty but an hypostatised abstraction? A faculty is no more than a possibility. Whatever happens implies no doubt a possibility of its happening. Voluntary action implies a possibility of voluntary action, just as the motion of a billiard-ball implies a possibility of that motion, but the possibility in each is determined by definite conditions. In the case of the billiard-ball these conditions, or some of them, are so obvious that we do not think of treating the possibility of the ball's moving as a faculty inherent in the ball, and of ascribing the ball's motion to this faculty as its cause: although, as we know, when the causes of a motion are less apparent the uninstructed are quite ready to ascribe it to a faculty or power in the moving body. In ascribing any voluntary action to a faculty in man we are doing, it is said, just the same as in ascribing any particular motion to a faculty in the moving body. The fact is the particular voluntary action, which must be possible, no doubt, or it would not be done, but of which the real possibility consists in the assemblage of conditions which make up its cause. To include any 'faculty' of action among these is merely to express our ignorance of what they are or our unwillingness to examine them. Among them, it is true, is the wish which happens to be predominant in the agent at the moment of action; but this, too, has its definite conditions in the circumstances of the case and the motives operating on the agent. It may be owing to the character of the agent that one of these motives gets the upper hand, but his character again is only a name for an assemblage of conditions, of which it may be scarcely possible for us completely to trace the antecedents, but which we are not on that account justified in assigning to a cause that is no cause, but merely a verbal sub-

stantiation of the abstraction of our ignorance. Human freedom must be understood in some different sense from that with which our anthropologists are familiar, if it is to stand in the way of the scientific impulse to naturalise the moral man.

We will suppose then that a theory has been formed which professes to explain, on the method of a natural history conducted according to the principle of evolution, the process by which the human animal has come, according to the terminology in vogue, to exhibit the phenomena of a moral life—to have a conscience, to feel remorse, to pursue ideals, to be capable of education through appeals to the sense of honour and of shame, to be conscious of antagonism between the common and private good, and even sometimes to prefer the former. It has generally been expected of a moralist, however, that he should explain not only how men do act, but how they should act: and as a matter of fact we find that those who regard the process of man's natural development most strictly as a merely natural one are as forward as any to propound rules of living to which they conceive that, according to their view of the influences which make him what he is, man *ought* to conform. The natural science of man is to them the basis of a practical art. They seek to discover what are the laws—the modes of operation of natural forces—under which we have come to be what we are, in order that they may counsel us how to seek our happiness by living according to those laws. Now it is obvious that to a being who is simply a result of natural forces an injunction to conform to their laws is unmeaning. It implies that there is something in him independent of those forces, which may determine the relation in which he shall stand to them. A philosopher, then, who would reconstruct our ethical systems in conformity with the doctrines of evolution and descent, if he would be consistent, must deal less scrupulously with them than perhaps any one has yet been found to do. If he has the courage of his principles, having reduced the speculative part of them to a natural science, he must abolish the practical or preceptive part altogether. Instead, for instance, of telling men of a greatest sum of pleasures which they ought to seek, and which by acting in the light of a true insight into natural laws they may attain, he will content himself with ascertaining, so far as he can, whether such and such a temperament under such and such circumstances yields more frequent, durable, and intense pleasures than such another temperament under such other circumstances. He will not mock the misery of him who fails, nor flatter the self-complacency of him who prospers, by speaking of a happiness that is to be obtained by conformity to the laws of nature, when he knows that, according to his own prin-

ciples, it is a struggle for existence determined by those laws which has brought the one to his wretchedness and the other to his contentment. He will rather set himself to show how the phraseology of 'ought' and 'ought not,' the belief in a good attainable by all, the consciousness of something that should be though it is not, may according to his philosophy be accounted for. Nor, if he has persuaded himself that the human consciousness, as it is, can be physically accounted for, will he find any further difficulty in so explaining that language of moral injunction which forms so large an element in its expression. He will probably trace it to the joint action of two factors—to the habit of submission to the commands of a physical or political superior, surviving the commands themselves and the memory of them, combined with that constant though ineffectual wish for a condition of life other than his own, which is natural to a being who looks before and after over perpetual alternations of pleasure and pain.

The elimination of ethics, then, as a system of precepts, involves no intrinsic difficulties other than those involved in the admission of a natural science that can account for the moralisation of man. The discovery, however, that our assertions of moral obligation are merely the expression of an ineffectual wish to be better off than we are, or are due to the survival of habits originally enforced by physical fear, but of which the origin is forgotten, is of a kind to give us pause. It logically carries with it the conclusion, however the conclusion may be disguised, that, in inciting ourselves or others to do anything because it ought to be done, we are at best making use of a serviceable illusion. And when this consequence is found to follow logically from the conception of man as in his moral attributes a subject of natural science, it may lead to a reconsideration of a doctrine which would otherwise have been taken for granted as the most important outcome of modern enlightenment. As the first charm of accounting for what has previously seemed the mystery of our moral nature passes away, and the spirit of criticism returns, we cannot but inquire whether a being that was merely a result of natural forces could form a theory of those forces as explaining himself. We have to return once more to that analysis of the conditions of knowledge, which forms the basis of all Critical Philosophy whether called by the name of Kant or no, and ask whether the experience of connected matters of fact, which in its methodical expression we call science, does not presuppose a principle which is not itself any one or number of such matters of fact, or their result.

Can the knowledge of nature be itself a part or product of nature in that sense of nature in which it is said to be an ob-

ject of knowledge? This is our first question. If it is answered in the negative, we shall at least have satisfied ourselves that man, in respect of the function called knowledge, is not merely a child of nature. We shall have ascertained the presence in him of a principle not natural, and a specific function of this principle in rendering knowledge possible. The way will then be so far cleared for the further question which leads us, in the language of Kant, from the Critique of Speculative to that of Practical Reason: the question whether the same principle has not another expression than that which appears in the determination of experience and through it in our knowledge of a world—an expression which consists in the consciousness of a moral ideal and the determination of human action thereby.

The question before us must not be confused with that commonly supposed to be at issue between spiritualists and materialists. It is one which equally remains to be put in whatever way we understand the relation between body and mind. We may have admitted most unreservedly that all the so-called functions of the soul are materially conditioned, but the question how there come to be for us those objects of consciousness, called matter and motion, on which we suppose the operations of sense and desire and thought to be dependent, will still remain to be answered. If it could be admitted that matter and motion had an existence *in themselves*, or otherwise than as related to a consciousness, it would still not be by *such* matter and motion, but by the matter and motion which we know, that the functions of the soul, or anything else, can for us be explained. Nothing can be known by help of reference to the unknown. But matter and motion, just so far as known, consist in, or are determined by, relations between the objects of that connected consciousness, which we call experience. If we take any definition of matter, any account of its 'necessary qualities,' and abstract from it all that consists in a statement of relations between facts in the way of feeling or between objects that we present to ourselves as sources of feeling, we shall find that there is nothing left. Motion, in like manner, has no meaning except such as is derived from a synthesis of the different positions successively held by one and the same body, and we shall try in vain to render an account to ourselves of position or succession, of a body or its identity, except as expressing relations of what is contained in experience, through which alone that content possesses a definite character and becomes a connected whole. What then is the source of these relations, as relations of the experienced, in other words, of that which exists for consciousness? What is the principle of union which renders them possible? Clearly it cannot itself be conditioned

by any of the relations which result from its combining and unifying action. Being that which so organises experience that the relations expressed by our definitions of matter and motion arise therein, it cannot itself be determined by those relations. It cannot be a matter or motion. However rigidly, therefore, we may exclude from our explanations of phenomena all causes that are not reducible to matter and motion, however fully we may admit that the nature which we know or may know is knowable only under strictly physical laws, we are none the less in effect asserting the existence of something which, as the source of a connected experience, renders both the nature that we know and our knowledge of it possible, but is not itself physically conditioned. We may decide all the questions that have been debated between materialists and spiritualists as to the explanation of particular facts in favour of the former, but the possibility of explaining them at all will still remain to be explained. We shall still be logically bound to admit that in a man, who can know a nature—for whom there is a cosmos of experience—there is a principle which is not natural and which cannot without a ὕστερον πρότερον be explained as we explain the facts of nature.

There are certain accepted doctrines of modern philosophy—*e.g.*, that knowledge is only of phenomena, not of anything unrelated to consciousness, and that object and subject are correlative—from which this conclusion seems to follow so inevitably, that anyone who has adopted it must inquire anxiously why it is not more generally recognised. If nothing can enter into knowledge that is unrelated to consciousness; if relation to a subject is necessary to make an object, so that an object which no consciousness presented to itself would not be an object at all; it is as difficult to see how the principle of unity, through which phenomena become the connected system called the world of experience, can be found elsewhere than in consciousness, as it is to see how the consciousness exercising such a function can be a part of the world which it thus at least co-operates in making; how it can be a phenomenon among the phenomena which it unites into a knowledge. Why then do our most enlightened interpreters of nature take it as a matter of course that the principle of unity in the world of our experience is something which, whatever else it is—and they can say nothing else of it—is at any rate the negation of consciousness, and that consciousness itself is a phenomenon or group of phenomena in which this "nature" exhibits itself or results? And why is it that, when we have professedly discarded this doctrine, we still find it to a great extent controlling our ordinary thoughts? There must be reasons for this inconsistency, which should be

duly considered if we would understand what we are about in maintaining that there is a sense in which man is related to nature as its author as well as one in which he is related to it as its child.

The reader is probably acquainted with Kant's dictum that "the understanding makes nature". It gives no doubt a somewhat startling expression to the revolution in philosophy which Kant believed himself to have introduced, and which he compared to the change effected by the Copernican theory in men's conception of the relative positions of the earth and the sun. When we inquire, however, into the precise sense in which Kant used the expression, we find that its meaning is subject to a qualification which testifies to the difficulty experienced by Kant himself in carrying out the doctrine which the words seemed to convey. "Macht zwar Verstand die Natur, aber er schafft sie nicht." The understanding "makes" nature, but out of a material which it does not make. That material, according to Kant, consists in phenomena or "data" of sensibility, given under the so-called forms of intuition, space and time. This apparent ascription of nature to a two-fold origin—an origin in understanding in respect of its form as a nature, as a single system of experience; an origin elsewhere in respect of the "matter" which through the action of understanding becomes a nature—cannot but strike us as unsatisfactory. Perhaps it may not be a doctrine in which we can permanently acquiesce, but meanwhile it represents fairly enough on its two sides the considerations which on the one hand lead us to regard nature as existing only in relation to thought, and those on the other which seem obstinately opposed to such a view.

To say with Kant that the understanding is the principle of objectivity, that only through understanding is there for us an objective world, is sure to seem at first sight the extreme of perversity. We have come to think of the understanding as specially an agency of our own, and of the objective world as specially that which is presented to us independently of any such agency; as that which we find and do not make, and by which we have to correct the fictions of our own minds. When we ask, however, whether any impression is or represents anything "real and objective," what exactly does the question mean, and how do we set about answering it? It is not equivalent to a question whether a feeling is felt. Some feeling must be felt in order to the possibility of the question being raised at all. It is a question whether a given feeling is what it is taken to be; or, in other words, whether it is related as it seems to be related. It may be objected indeed that, though *some* feeling or other must be felt in order to give any meaning to the question as to

the objectivity of the impression or its correspondence with reality, yet still this question may and often does mean merely whether a *particular* feeling is felt. This is true, but a particular feeling is a feeling related in a certain way, and the question whether a particular feeling is really felt is always translatable into the form given—Is a feeling, which is undoubtedly felt, really related as some one thinking about it takes it to be? If an engine-driver, under certain conditions, permanent with him or temporary, as we say, 'sees a signal wrong,' his disordered vision has its own reality just as much as if he saw right. There are relations between combinations of moving particles on the one side and his visual organs on the other, between the present state of the latter and certain determining conditions, between the immediate sensible effect and the secondary impressions which it in turn excites, as full and definite—with sufficient inquiry and opportunity as ascertainable—as in any case of normal vision. There is as much reality in the one case as in the other, but it is not the same reality: *i.e.*, it does not consist in the same relations. The engine-driver mistakes the effect of one set of relations for that of another, one reality for another, and hence his error in action. He may be quite innocent of a scientific theory of vision, but he objectifies his sensations. He interprets them as related in a certain way, and as always the same in the same relations; or, to use an equivalent but more familiar expression, as signs of objects from which he distinguishes his feelings and by which he explains them. Were this not the case, his vision might be normal or abnormal, but he would be incapable of mistaking one kind of reality for another, since he would have no conception of reality at all.

The terms 'real' and 'objective,' then, have no meaning except for a consciousness which presents its experiences to itself as determined by relations, and at the same time conceives a single and unalterable order of relations determining them, with which its temporary presentation, as each experience occurs, of the relations determining it may be contrasted. For such a consciousness, perpetually altering its views of the relations determining any experience under the necessity of combining them in one system with other recognised relations, and for such a consciousness only, there is significance in the judgment that any experience seems to be so and so, *i.e.*, to be related in a certain way, but really is otherwise related. We shall have afterwards to consider the question whether the consciousness, for which alone this contrast of the real and the apparent is possible, has anything to do with the establishment of the relations in which it conceives reality to consist—whether the

conception of reality has any identity with the act by which reality is constituted. But even if this latter question is waived or answered in the negative, there will still be an important sense in which understanding, or consciousness as acting in the manner described, may be said to be the principle of objectivity. It will be through it that there is *for us* an objective world; through it that we *conceive* an order of nature, with the unity of which we must reconcile our interpretations of phenomena, if they are to be other than 'subjective' illusions. Of course it may very well be that many a man would disclaim any such conception, who is yet constantly acting upon the distinction between what he believes to be mere appearance and what he believes to be reality. But want of familiarity with the abstract expression of a conception, want of ability to analyse it, is no evidence that the conception is inoperative upon the experience of the person who, from this want of familiarity or ability, would say, if he were asked, that he had it not, or knew not what it meant. The proof of the necessity of certain ideas has never been supposed by any one who knew what he was about to rest upon the fact that every one was aware of having them. Such a proof, to say nothing of the well-worked appeal to savages or the uneducated, would be at the mercy of every lively gentleman who was pleased to say that he searched his breast for such ideas in vain. The necessity of a conception, as distinct from the logical (or rather rhetorical) necessity of a conclusion contained in premisses already conceded, means that it is necessary to the experience without which there would not for us be a world at all; and there can be neither proof nor disproof of such necessity as is claimed for any conception, but through analysis of the conditions which render this experience possible. Unless the accuracy or sufficiency of the analysis can be disputed, the necessary character of the ideas which it exhibits as operative in the formation of experience, is unaffected by the inability of any one to recognise them in that abstract form to which the analysis reduces them, but which, just because they are operative in a concrete experience, is not the form of their familiar use. A man who is quite at home with the distinction between facts and fancies may think it strange to be told that the distinction implies a conception of the world as a single system of relations; that this is the conception on the strength of which he constantly sets aside as fancy what he had taken to be fact, because he finds that the supposed relations which for him formed the nature of the fact are not such as can be combined with others that he recognises in one intelligible system. Such language may convey no meaning to him, but the question will still remain whether upon reflection the dis-

tinction can be otherwise accounted for. When we analyse our idea of matter of fact, can we express it except as an idea of a relation which is always the same between the same objects; or our idea of an object except as that which is always the same in the same relations? And does not each expression imply the idea of a world as a single and eternal system of related elements, which may be related with endless diversity but must *be* related still? If we may properly call the consciousness, which yields this idea 'understanding,' are we not entitled to say that understanding is the source of there being for us an objective world, that it is the principle of objectivity?

So far we have only reached the conclusion that a conception, to which understanding is related as faculty to function, is the condition of our ability to distinguish a real from the unreal, matter of fact from illusion. It will be said perhaps that so much pains need not have been spent on establishing a proposition which in effect merely tells us that without a conception of an order of nature we could not conceive an order of nature. Is not this, it may be asked, either an identical proposition or untrue—an identical proposition, if understood strictly as thus put; untrue, if taken to mean that the conception of an order of nature does not admit of being generated out of materials other than itself? Now it is just the difficulties in the way of explaining the origin of the conception in question out of anything else than judgments which presuppose it, that we wish to exhibit. They are the difficulties which beset any theory that would treat the knowledge of nature as itself the result of natural processes. It is through *experience* that every such theory must suppose the resulting knowledge to be produced. But experience, as most students of philosophy must now be aware, is a term used in very different senses. In this case an experience which is to yield the required result must not be merely an experience in the sense in which, for instance, a plant might be said to experience a succession of atmospheric or chemical changes, or in which we ourselves pass through a definite physical experience during sleep or in respect of the numberless events which affect us but of which we are not aware. Such an experience may no doubt gradually alter to any extent the mode in which the physical organism reacts upon stimulus. It may be the condition of its becoming organic to intellectual processes, but between it and experience of the kind which is to yield a knowledge of nature there is a chasm which no one, except by confusion of speech, has attempted to fill. Or to speak more precisely, between the two senses of experience there is all the difference that exists between change and consciousness of change.

Experience of the latter kind must be experience of matters of fact *recognised as such.* It is possible, no doubt, to imagine a psychological history of this experience, and to trace it back to a stage in which the distinction between fact and fancy is not yet formally recognised. But there is a limit to this process. An experience which distinguishes fact from fancy cannot be developed out of one which is not in some form or other a consciousness of events as related or as a series of changes. It has commonly, and with much probability, been held that the occurrence of the unexpected, by exciting distrust in previously established associations of ideas, has at any rate a large share in generating the distinction of what seems from what is. But the shock of surprise is one thing, the correction of a belief quite another. Unless there were already a consciousness alike of the events, of which the ideas have become associated as a related series, and of the newly observed event as a member of the same, the unfamiliar event might cause a disturbance of the nerves or the 'psychoplasm,' but there would neither be an incorrect belief as to an order of events to be corrected by it, nor any such correlation of the newly observed event with what had been observed before as could suggest a correction. But a consciousness of events as a related series—experience in the most elementary form in which it can be the beginning of knowledge—has not any element of identity with, and therefore cannot properly be said to be developed out of, a mere series of related events, of successive modifications of body or soul, such as is experience in the former of the senses spoken of. No one and no number of a series of related events can be the consciousness of the series as related. Nor can any product of the series be so either. Even if this product could be anything else than a further event, it could at any rate only be something that supervenes at a certain stage upon such of the events as have so far elapsed. But a consciousness of certain events cannot be anything that thus succeeds them. It must be equally present to all the events of which it is the consciousness. For this reason an intelligent experience, or experience as the source of knowledge, can neither be constituted by events of which it is the experience nor be a product of them.

'Perhaps not,' it may be replied, 'but may it not be a product of previous events?' If it is so, a series of events of which there is no conscious experience must be supposed to produce a consciousness of another series. On any other supposition, the difficulty is only postponed. For if the series of events which produces a certain consciousness of other events is one of which there *is* a consciousness, this consciousness, not being explicable as the product of the events of which it is the consciousness,

will have in turn to be referred to a prior series of events; and ultimately there will be no alternative between the admission of a consciousness which is not a product of events at all and the supposition stated—the supposition that the primary consciousness of events results from a series of events of which there is no consciousness. But this supposition, when we think of it, turns out to be a concatenation of words to which no possible connexion of ideas corresponds. It asserts a relation of cause and effect, in which the supposed cause lacks all the characteristics of a cause. It may be questioned whether we may admit anything as a cause which does not explain its supposed effect, or is not equivalent to the conditions into which the effect may be analysed. But granting that we may, a cause must at least be that to which experience testifies as the uniform antecedent of the effect. Now a series of events of which there is no consciousness is certainly not a set of conditions into which consciousness can be analysed. And as little can it be an antecedent uniformly associated with consciousness in experience, for events of which there is no consciousness cannot be within experience at all.

It seems necessary, then, to admit that experience, in the sense of a consciousness of events as a related series—and in no other sense can it help to account for the knowledge of an order of nature—cannot be explained by any natural history, properly so called. It is not a product of a series of events. It does not arise out of materials other than itself. It is not developed by a natural process out of other forms of natural existence. Given such a consciousness, the scientific conception of nature, no less than the everyday distinction between fact and fancy, between objective reality and subjective illusion, can be exhibited as a development of it, for there is an assignable element of identity between the two. But between the consciousness itself on the one hand, and on the other anything determined by the relations under which a nature is presented to consciousness, no process of development, because no community, can be really traced. Nature, with all that belongs to it, is a process of change: change on a uniform method, no doubt, but change still. All the relations under which we know it are relations in the way of change or by which change is determined. But neither can any process of change yield a consciousness of itself, which in order to be a consciousness of the change must be equally present to all stages of the change: nor can any consciousness of change, since the whole of it must be present at once, be itself a process of change. There may be a change into a state of consciousness of change, and a change out of it, on the part of this man or that; but within the con-

sciousness itself there can be no change, because no relation of before and after, of here and there, between its constituent members—between the presentation, for instance, of point A and that of point B in the process which forms the object of the consciousness.

From the above considerations thus much at any rate would seem to follow: that a form of consciousness, which we cannot explain as of natural origin, is necessary to our conceiving an order of nature, an objective world of fact from which illusion may be distinguished. In other words, an understanding—for that term seems as fit as any other to denote the principle of consciousness in question—irreducible to anything else, 'makes nature' for us in the sense of enabling us to conceive that there is such a thing. Now that which the understanding thus presents to itself consists, as we have seen, in certain relations regarded as forming a single system. The next question, then, will be whether understanding can be held to 'make nature' in the further sense that it is the source, or at any rate a condition, of there being these relations. If it cannot, we are left in the awkward position of having to suppose that while the conception of an order of nature on the one side, and that order itself on the other, are of different and independent origin, there is yet some unaccountable pre-established harmony through which there comes to be such an order corresponding to our conception of it. This indeed might be urged as a reason for seeking some way of escape from the conclusion at which we have just arrived. But before we renew an attempt which has often been made and failed, let us see whether the objections to the other alternative—to the view that the understanding which presents an order of nature to us is in principle one with an understanding which constitutes that order itself—have really the cogency which common-sense seems to ascribe to them.

The traditional philosophy of common-sense, we shall find, speaks upon the point with an ambiguity which affords a presumption of its involving more difficulty than might at first sight appear. No one is more emphatic than Locke in opposing what is real to what we "make for ourselves," the work of nature to the work of the mind. Simple ideas or sensations we certainly do not "make for ourselves". They therefore and the matter supposed to cause them are, according to Locke, real.[1] But relations are neither simple ideas nor their material archetypes. They therefore, as Locke explicitly holds, fall under the head of the work of the mind, which is opposed to the real.[2]

[1] *Essay concerning Human Understanding*, II., xii., 1.
[2] *Ibid.*, II., xxv., 8.

But if we take him at his word and exclude from what we have considered real all qualities constituted by relation, we find that none are left. Without relation any simple idea would be undistinguished from other simple ideas, undetermined by its surroundings in the cosmos of experience. It would thus be unqualified itself, and consequently could afford no qualification of the material archetype, which yet according to Locke we only know through it or, if otherwise, as the subject of those "primary qualities" which demonstrably consist in relations.[1] In short, the admission of the antithesis between the real and the work of the mind, and the admission that relation is the work of the mind, put together, involve the conclusion that nothing is real of which anything can be said. Our ordinary way out of the difficulty consists in keeping the two admissions apart, without, however, surrendering either. We maintain the opposition between the real and the work of the mind exactly as it was asserted by Locke, and if we are less explicit in accounting relations to be the work of the mind, it is not because we have any theory of the real which more logically admits them than does Locke's. Yet we have no scruple in accepting duly verified knowledge as representing reality, though what is known consists in nothing else than relations. We neither ask ourselves how it can be that a knowledge of relations should be a knowledge of reality, if the real is sincerely simple sensation or that which copies itself in simple sensation, nor what other account we can give of the real without qualifying the antithesis between the work of the mind and it. It is in fact from our adoption of this antithesis that we come to accept that identification of the real with simple sensation or its archetype which, as Locke was aware, implies the unreality of relations. But when in our processes of knowledge we have virtually recognised relations as constituting the very essence of reality, we do not reconsider our definition of the real in the light of this recognition. We do not lay our procedure in what we regard as knowledge of the real alongside Locke's view of the real, which is also ours, so as to ask whether they are consistent with each other. And hence we are not led to call in question the antithesis on which that view depends.

As it is a serious matter, however, to accept a view of the real which such a thinker as Locke could not reconcile with the reality of relations, and which logically implies that knowledge is not of the real; and as on the other hand there is something in the opposition between the real and the work of the mind which seems to satisfy an imperative demand of common-sense;

[1] *Essay concerning Human Understanding*, II., viii., 15 and 23. II., xxx., 2.

it becomes important to inquire whether we interpret that demand aright. Is there not a conception of the real behind the opposition in question, which seems to require us to accept it, but which in truth we misinterpret in doing so?

We constantly find Locke falling back on the consideration that of simple ideas "we cannot make one to ourselves". They "force themselves upon us whether we will or no". It is this which entitles them in his eyes to be accounted real. "The work of the mind," on the other hand, he considers arbitrary. A man has but to think and he can make ideas of relation for himself as he pleases. He thus indicates what we may call the operative conception—operative as governing the action of our intelligence—which underlies the opposition between the real and the work of the mind. This is the conception which we have described already as that of a single and unalterable system of relations. It is not the work of the mind, as such, that we instinctively oppose to the real, but the work of the mind as assumed to be arbitrary and irregularly changeable. In truth, however, there is no such thing. The very question, What is the real?—which we seem to answer by help of this opposition—is a misleading one, so far as it implies that there is something else from which the real can be distinguished. We are apt to make merry over the crude logic of Plato in supposing that there are objects, described as *μὴ ὄντα*, which stand in the same relation to ignorance as *τὰ ὄντα* to knowledge, and other objects, described as *τὰ μέταξυ*, which stand in a corresponding relation to mere opinion. Of this fallacy, as of most others that are to be found in him, Plato himself supplies the correction, but much of our language about the real implies that we are ourselves its victims. If there is a valid opposition between the work of the mind and something else which is not the work of the mind, the one must still be just as real as the other. Of two alternatives, one. Either the "work of the mind" is a name for nothing, expressing a mere privation or indeterminateness, a mere absence of qualities, in which case nothing is conveyed by the proposition which opposes the real or anything else to it: or, on the other hand, if it has qualities and relations of its own, then it is just as real as anything else. Through not understanding the relations which determine the one kind of object—that ascribed to the work of the mind—as distinct from those which determine the other—that ascribed to some other agency—we may confuse the two kinds of object. We may take what is really of the one kind to be really of the other. But this is not a confusion of the real with the unreal. The very confusion itself, the mistake of supposing what is related in one way to be related in another, has its own reality. It has its history, its place in the development

of a man's mind, its causes and effects; and as so determined, it is a real as anything else.

It is thus in vain that we seek to define the real by finding either in the work of the mind or elsewhere an unreal to which it may be opposed. Is there, then, no meaning in an opposition which is constantly on our tongues? Undoubtedly that which any event seems to us to be may be—nay always is—more or less different from what it really is. The relations by which we judge it to be determined are not, or at any rate fall short of, those by which it is really determined. But this is a distinction between one particular reality and another; not between a real, as such or as a whole, and an unreal, as such or as a whole. The illusive appearance, as opposed to the reality, of any event is what *that* event really is not; but at the same time it really is something. It is real, not indeed with the particular reality which the subject of the illusion ascribes to it, but with a reality which a superior intelligence might understand. The relations, by which in a false belief as to a matter of fact we suppose the event to be determined, are not non-existent. They are really objects of a conceiving consciousness. As arising out of the action of such a consciousness, as constituents of a world which it presents to itself, they are no less real than are the actual conditions of the event which is thought to be, but is not really, determined by them. It is when we reflect on the judgments in which we are perpetually deciding that what has previously been taken to be the reality of a particular event is a mere appearance, *i.e.*, not the reality of that particular event—or rather when we reflect on the language in which those judgments have been expressed—that we come to speak of the real as an abstract universal in contrast with another abstract universal, the unreal. Thus for a contrast which is in truth a contrast between two acts of judgment—the act of judging an event to be determined by certain relations which, according to the order of the universe, do determine it, and that of judging it to be determined by relations other than these—we substitute another, which exists merely in words, but to which we fancy that we give a meaning by identifying the unreal with the work of the mind, as opposed to a real which has some other origin, we cannot say what.

What we have so far sought to show has been (1), generally, that an attempt to define the real by distinction from anything else is necessarily futile—the result of a false abstraction from the distinction between the real nature of one event or object and that of another—and (2), specially, that the antithesis between the real and the work of the mind is invalid, not because the real is the work of the mind—whether it is so or not we

have yet to inquire—but because the work of the mind is real. The 'mere idea' of a hundred thalers, to use the familiar instance, is no doubt quite different from the possession of them, not because it is unreal, but because the relations which form the real nature of the idea are different from those which form the real nature of the possession.

So much it was necessary to show in order that the inquiry, whether it is due to 'understanding' not merely that we are able to conceive a nature but that there is such a thing as nature at all, might not be prejudiced by a preconception which would make it seem equivalent to an inquiry whether the real could be the work of the unreal. If now for the futile question, What is the real? which we can only answer by saying that the real is everything, we pass to one more hopeful—How do we decide whether any particular event or object is really what it seems to be, or whether our belief about it is true?—the answer must be that we do so by testing the unalterableness of the qualities which we ascribe to it, or which form its apparent nature. A certain hill appears to-day to be near: yesterday under different conditions of atmosphere it appeared to be remote. But the real nature of the event which took place in yesterday's appearance cannot, we judge, thus change. What it was really, it was unalterably. There may have been a change from that appearance to another, but not a change of or in whatever was the reality of the appearance. The event of yesterday's appearance, then, must have been determined by conditions other than those which determine to-day's. But if both appearances depended solely on the position of the hill, they would be determined by the same conditions. Therefore we must have been wrong in believing the hill to be so remote as we believed it to be yesterday, or in believing it to be so near as we believed it to be to-day, or in both beliefs: wrong in respect of the relation which we supposed to exist between the several appearances and the distance of the hill.

With sufficient time and command of detail it would not be difficult to show how the conviction here illustrated, that whatever anything is really it is unalterably, regulates equally our most primitive and our most developed judgments of reality—the every-day supposition of there being a multitude of separate things which remain the same in themselves while their appearances to us alter, and the scientific quest for uniformity or unalterableness in a law of universal change. Through a slight confusion of thought and expression, it may issue either in the sensational atomism of Locke or in the material atomism of popular science. A sensation is the unalterable effect of its conditions, whatever those conditions may be. It is unalterably

related to other sensations. Our opinion about its conditions or relations may vary, but not the conditions or relations themselves, or the sensation determined by them. Hence when a man looks into his breast, as Locke bids him do, simple feelings—feelings apart from intellectual interpretations and combinations of them—seem alone unalterable in contrast with our judgments about them. In truth the unalterableness belongs not to any simple feeling, for our feelings change every moment upon us, but, as we have said, to the relation between it and its conditions or between it and other feelings, and such a relation is neither itself a feeling nor represented in our consciousness by a feeling. This distinction, however, is overlooked. The unalterableness of the fact that a certain feeling is felt under certain conditions, is ascribed to the simple feeling, or simple idea, as such: and unalterableness being the test by which we ascertain whether what we have believed to be the nature of any event is really so or not, the simple feeling, which by itself cannot properly be said to be really anything, comes to be regarded either as alone real, according to the ideal form of sensationalism, or as alone representing an external reality, according to the materialistic form of the same doctrine. On the other hand, reflection upon the 'perpetual flux' of sensation suggests the view that it is not real in the same sense as its material conditions. The old dictum ascribed to Democritus—*νόμῳ γλυκὺ καὶ νόμῳ πικρόν, νόμῳ θερμόν, νόμῳ ψυχρόν, νόμῳ χροιή· ἐτεῇ δὲ ἄτομα καὶ κενόν*—expresses a way of thinking into which we often fall. The reality which in truth lies in the relations, according to one law or system of relation, between feelings and their material conditions—not in the material conditions abstracted from the feelings any more than in the feelings abstracted from their material conditions—we are apt to ascribe exclusively to the latter. We think obscurely of matter and motion as real in some way in which nothing else is. Nor do we stop here. The demand for unalterableness in what we believe to be real, when once we are off the right track of seeking it in a uniform law of change, leads us to suppose that the 'reality of things' is only reached when we have penetrated to atoms which in all changes of their motion and distribution remain intrinsically the same.

Let us consider now how we stand. We have rejected the question, What is or constitutes the real? as intrinsically unmeaning, because it could only be answered by a distinction which would imply that there was something unreal. The question arises, we have seen, out of an abstraction from our constant inquiry into the real nature of this or that particular appearance or event—an inquiry in which we always seek for

an unchanging relation between the appearance and its conditions, or again for an unchanging relation between these and certain other conditions. The complete determination of an event it may be impossible for our intelligence to arrive at. There may always remain unascertained conditions which may render the relation between an appearance and such conditions of it as we know liable to change. But that there is an unalterable order of relations, if we could only find it out, is the presupposition of all our inquiry into the real nature of appearances, and such unalterableness implies their inclusion in one system which leaves nothing outside itself. Are we then entitled to ask—and if so, are we able to answer—the further question, What is implied in there being such a single, all-inclusive, system of relations? or, What is the condition of its possibility? If this question can be answered, the condition ascertained will be the condition of there being a nature and of anything being real in the only intelligible sense that we can attach to the words 'nature' and 'real'. It would no doubt still be open to the sceptic, should this result be attained, to suggest that the validity of our conclusion, upon our own showing, depends upon there really being such an order of nature as our quest of knowledge supposes there to be, which remains unproven. But as the sceptic, in order to give his language and meaning, must necessarily make the same supposition—as he can give no meaning to reality but the one explained—his suggestion that there really may not be such an order of nature is one that conveys nothing at all.

First, then, is there any meaning in the question just put? Having set aside as unmeaning the question, What is the real? can we be entitled to ask what is implied in there being a nature of things? If the former question would have been only answerable on the self-contradictory supposition of there really being something other than the real from which it could be distinguished, will not the latter in like manner be only answerable on the equally impossible supposition of there being something outside the nature of things, outside the one all-inclusive system of relations, by reference to which this nature or system can be explained? To this we reply that the question stated is or is not one that can be fitly asked according as the conception of nature, of a single all-inclusive system of relations, is or is not one that can stand alone, is or is not one that requires something else to render it intelligible. To suppose that this 'something else,' if nature were found unthinkable without it, is related to those conditions, of which the relation to each other forms the system of nature, in the same way in which these are related to each other, would no doubt be in contradiction with

our account of this system as one and all-inclusive. It could not therefore be held to be related to them as, for instance, an invariable antecedent to an invariable sequent, or as one body to another outside it. But there would be no contradiction in admitting a principle which renders all relations possible, and is itself determined by none of them, if, on consideration of what is needed to constitute a system of relations, we found such a principle to be requisite.

This, then, is the consideration which we have now to undertake. Relation is to us such a familiar fact that we are apt to forget that it involves all the mystery, if it be a mystery, of the existence of many in one. Whether we say that a related thing is one in itself, manifold in respect of its relations, or that there is one relation between manifold things, *e.g.*, the relation of mutual attraction between bodies—and one expression or the other we must employ in stating the simplest facts—we are equally affirming the unity of the manifold. Abstract the many relations from the one thing and there is nothing. They, being many, determine or constitute its definite unity. It is not the case that it first exists in its unity, and then is brought into various relations. Without the relations it would not exist at all. In like manner the one relation is a unity of the many things. They, in their manifold being, make the one relation. If these relations really exist, there is a real unity of the manifold, a real multiplicity of that which is one. But a plurality of things cannot of themselves unite in one relation, nor can a single thing of itself bring itself into a multitude of relations. It is true, as we have said, that the single things are nothing except as determined by relations which are the negation of their singleness, but they do not therefore cease to be single things. Their common being is not something into which their several existences disappear. On the contrary, if they did not survive in their singleness, there could be no relation between them—nothing but a blank featureless identity. There must, then, be something other than the manifold things themselves which combines them without effacing their severalty. With such a combining agency we are familiar as our intelligence. It is through it that the sensation of the present moment takes a character from comparison with the sensation of a moment ago, and that the occurrence consisting in the transition from one to the other is presented to us. It is essential to the comparison and to the character which the sensations acquire from the comparison, essential, too, to their forming an observable event or succession, that one should not be fused with the other, that the distinct being of each should be maintained. On the other hand, in the relation to which their distinctness is thus ne-

cessary they are at the same time united. But if it were not for the action of something which is not either of them or both together, there would be no alternative between their separateness and their fusion. One might give place to the other, or both together might be combined into a third, but a unity in which their distinctness is preserved could not be constituted without the relating act of an intelligence which does not blend with either.

The above is an instance of relation between sensations which, as brought into relation by intelligence, become sensible objects or events. But the same or an analogous action is necessary to account for any relation whatever—for a relation between material atoms as much as any other. Either then we must deny the reality of relations altogether and treat them as fictions of our combining intelligence; or we must hold that, being the product of our combining intelligence, they are yet 'empirically real' on the ground that our intelligence is a factor in the real of experience; or if we suppose them to be real otherwise than merely as for us, otherwise than in the 'cosmos of our experience,' we must recognise as the condition of this reality the action of some unifying principle analogous to that of our understanding.

As we have seen, the first of these alternative views, if consistently carried out, will not allow us to regard anything as real of which anything can be said, since all predication is founded on relation of some kind. It therefore naturally leads to the second. All that we in fact count real turns out to be determined by relations. Feeling may be the revelation or the test of the real, but it must be feeling in certain relations, or it neither reveals nor tests anything. Thus we are obliged to recognise a reality, at least of that kind which in our every-day knowledge and action we distinguish from illusion, in what is yet the work of the mind, or at any rate must be held to be so until relations can be accounted for without a relating act or that act referred to something else than the mind. Hence with those who adhere to the opposition between the real and the work of the mind, and who at the same time cannot ignore the work of the mind in the constitution of relations, there arises a distinction between reality in some absolute sense—the reality of 'things in themselves' which are supposed to be wholly exempt from any qualification through relating acts of the mind, but of which, for that reason, nothing can be known or said—and the 'empirical' reality of that which we distinguish from illusion as standing in definite relations to the universe of our experience.

This distinction governs the theory of Kant. It is more easy

to point out the embarrassments and inconsistencies into which it leads him than to get rid of the distinction itself. Ordinary criticism of Kant, indeed, has not taken much heed of the distinction or of its perplexing results. It has been too busy in refuting his doctrine that "laws of nature" are derived from understanding to inquire closely into his view of the relation between nature, in his sense of the term, and "things-in-themselves". It has been gaining apparent triumphs, due to a misunderstanding of the question at issue, over the strongest part of his system, while it has left the weakest unassailed. There have been abundant proofs of what was not in dispute, that our knowledge of laws of nature is the result of experience, but the question whether phenomena could be so related as to constitute the nature which is the object of our experience without the unifying action of understanding is seldom even touched. Given an experience of phenomena related to each other in one system—so related that whatever an object is really, or according to the fulness of its relations, it is unalterably—it is easy to show that our knowledge of laws of nature is derived from it. Such experience in its most elementary form is already implicitly a knowledge that there are laws of nature, and only needs to be reflected on in order to become so explicitly. Having become so explicitly, the development of the experience—through cognisance of relations of which there has previously been no experience or of which the experience has not been reflected on—becomes a growing knowledge of what the laws of nature in particular are. But the derivation of knowledge from an experience of unalterably related phenomena is its derivation from objects unalterably related in consciousness. If the relation of the objects were not a relation of them in consciousness, there would be no experience of it. The question then arises how a succession of feelings becomes such a relation of objects in consciousness. If a relation of objects existed or could be known to exist otherwise than for consciousness, this would not help to account for what has to be accounted for, which is wholly a process of consciousness. The feelings which succeed each other are no doubt due to certain related conditions, which are not feelings. But granting for the moment that these conditions and their relation exist independently of consciousness, in accounting for a multitude of feelings, they do not account for the experience of related objects. Of two objects which form the terms of a relation one cannot exist as so related without the other, and therefore cannot exist before or after the other. For this reason the objects between which a relation subsists, even a relation of succession are, just so far as related, not successive. In

other words, a succession always implies something else than the terms of the succession, and that a 'something else' which can simultaneously present to itself objects as existing not simultaneously but one before the other.

Thus in order that successive feelings may be related objects of experience, even objects related in the way of succession, there must be in consciousness an agent which distinguishes itself from the feelings, uniting them in their severalty, making them equally present in their succession. And so far from this agent being reducible to, or derivable from, a succession of feelings, it is the condition of there being such a succession; the condition of the existence of that relation between feelings, as also of those other relations which are not indeed relations between feelings but which, if they are matter of experience, must have their being in consciousness. If there is such a thing as a connected experience of related objects, there must be operative in consciousness a unifying principle, which not only presents related objects to itself, but at once renders them objects and unites them in relation to each other by this act of presentation; and which is single throughout the experience. The unity of this principle must be correlative to the unity of the experience. If all possible experience of related objects—the experience of a thousand years ago and the experience of to-day, the experience which I have here and that which I might have in any other region of space—forms a single system; if there can be no such thing as an experience of unrelated objects; then there must be a corresponding singleness in that principle of consciousness which forms the bond of relation between the objects.

It is such a principle that Kant speaks of sometimes as the "synthetic unity of apperception," sometimes simply as "understanding". For the reasons stated there seems no way of escape from the admission that it is, as he says, "the basis of the necessary regularity of all phenomena in an experience":[1] the basis, that is to say, not merely of our knowledge of uniform relations between phenomena, but of there being those uniform relations. The source of the relations and the source of our knowledge of them is one and the same. The question, how it is that the order of nature answers to our conception of it—or, as it is sometimes put, the question, whether nature really has, or, having, will continue to have, the uniformity which belongs to it in our conception—is answered by recognition of the fact that our conception of an order of nature, and the relations

[1] Kant's *Werke*, Ed. Rosenkranz, II., p. 114; in Hartenstein's Edition (1868), p. 583.

which form that order, have a common spiritual source. The uniformity of nature does not mean that its constituents are everywhere the same, but that they are everywhere related; not that "the thing which has been is that which shall be," but that whatever occurs is determined by relation to all that has occurred and contributes to determine all that will occur. If nature means the system of objects of possible experience, such uniformity necessarily arises in it from the action of the same principle which is implied in there being any relation between the objects of experience at all. A relation not related to all other relations of which there can be experience is an impossibility. It cannot exist except as constituted by the unifying subject of all experienced relations, and this condition of its possibility implies its connexion with all other relations that are or come to be so constituted. Every real relation, therefore, that is also knowable, is a necessary or 'objective' or unalterable relation. It is a fact of which the existence is due to the action of that single subject of experience which is equally, and in the same way, the condition of all facts that can be experienced; a fact which thus through that subject stands in definite and unchangeable connexion with the universe of those facts, at once determining and determined by them.

The result of this view is to overcome the separation, which in our ordinary thinking we assume, between the faculty or capacity or subjective process of experience on the one side and the facts experienced on the other. In first reflecting on our knowledge of a world, we always regard the facts known as existing quite independently of the activity by means of which they are known. Since it is obvious that the facts of the world do not come into existence when this or that person becomes acquainted with them, so long as we conceive of no intellectual action but that which this or that person exercises, we necessarily regard the existence or occurrence of the facts as independent of intellectual action. Hence arises the antithesis between the known or knowable world and the subject capable of knowing it, as between two existences independent of each other, or of which the former is at any rate independent of the latter. The mind is supposed to derive its materials from, and to act only in response to, the action of the world upon it; but the relations which it establishes between the materials, so derived, in its processes of distinction and comparison, of conception, judgment, and discourse, are supposed to be quite different, and to have a different source, from the relations between things or matters of fact in the world known. Upon further reflection, however, the untenableness of this view becomes apparent. It renders knowledge, as of fact or reality, inexplicable. It leaves

us without an answer to the question, how the order of relations, which the mind sets up, comes to reproduce those relations of the material world which are assumed to be of a wholly different origin and nature. Nor, as we pursue the analysis of the operations involved in the simplest perception of fact, are we able to detect any residuary phenomenon, amounting to a fact at all, that can be held to be given independently of a combining and relating activity which, if the antithesis between the work of the mind and the work of things be accepted, must be ascribed to the former. The necessity, therefore, of getting rid of the antithesis in question forces itself upon us: and it is natural that the way of doing so, which at first sight most commends itself to us, should consist in treating the mind and its work as a secondary result of what had previously been opposed to it as operations of nature. The weakness of such a method is twofold. In the first place there is the objection upon which we have already dwelt and which may be put summarily thus: that 'nature' is a *process of change*, and that the derivation of a *consciousness of* change from such a process is impossible. Secondly, such an explanation of the work of the mind, if nothing is known of it otherwise, is an explanation of it by the inexplicable. It is taking nature for granted, and at the same time treating that as a result of nature which is necessary to explain the possibility of there being such a thing as nature. For nature, as a process of continuous change, implies something other than the changes and to which they are relative. As a system of related elements it implies a unity, through relation to which the elements are related to each other. But with the reduction of thought or spirit or self-consciousness to a result of nature, if such reduction were possible, we should be eliminating the only agent that we know as maintaining an identity with itself throughout a series of changes, or as a principle that can unite a manifold without cancelling its multiplicity. In so explaining spirit we should be rendering the basis of our explanation itself inexplicable.

From the Kantian point of view, the dualism of nature and knowledge is disposed of in a different way. They are not identified but treated as forming an indivisible whole, which results from the activity of a single principle. It is not that first there is nature and that then there comes to be an experience and knowledge of it. Intelligence, experience, knowledge, are no more a result of nature than nature of them. If it is true that there would be no intelligence without nature, it is equally true that there would be no nature without intelligence. Nature is the system of related appearances, and related appearances are impossible apart from the action of an intelligence. They are

not indeed the same as intelligence; it is not reducible to them or they to it, any more than one of us is reducible to the series of his actions or that series to him; but without it they would not be, nor except in the activity which constitutes them has it any real existence. Does this then imply the absurdity that nature comes into existence in the process by which this person or that begins to think? Not at all, unless it is necessary to suppose that intelligence first comes into existence when this person or that begins to understand—a supposition not only not necessary, but which, on examination, will be found to involve impossibilities analogous to those which prevent us from supposing that nature so comes into existence. The difference between what may be called broadly the Kantian view and the ordinary view is this, that whereas according to the latter it is a world in which thought is no necessary factor that is prior to and independent of the process by which this or that individual becomes acquainted with it, according to the former it is a world already determined by thought, and which exists only in relation to thought, that is thus prior to, and conditions, our individual acquaintance with it. The growth of knowledge on our part is regarded not as a process in which facts or objects, in themselves unrelated to thought, by some inexplicable means gradually produce intelligible counterparts of themselves in thought. The true account of it is held to be that the concrete whole, which may be described indifferently as an eternal intelligence realised in the related facts of the world, or as a system of related facts rendered possible by such an intelligence, partially and gradually reproduces itself in us, communicating piece-meal but in inseparable correlation understanding and the facts understood, experience and the experienced world.

There are difficulties enough, no doubt, in the way of accepting such a form of 'idealism,' but they need not be aggravated by misunderstanding. It is simply misunderstood if it is taken to imply either the reduction of facts to feelings—impressions and ideas, in Hume's terminology—or the obliteration of the distinction between illusion and reality. The reduction of facts to relations is the very reverse of their reduction to feelings. No feeling, as such or as felt, is a relation. We can only suppose it to be so through confusion between it and its conditions, or between it and that fact of its occurrence which is no doubt related to other facts, but, as so related, is not felt. Even a relation between feelings is not itself a feeling or felt. A feeling can only be felt as successive to another feeling, but the terms of a relation, as we have seen, even though the relation be one of succession, do not succeed one another. In order to constitute the relation they must be present together, so that to con-

stitute a relation between feelings there must be something other than the feelings for which they are equally present. The relation between the feelings is not felt, because it is only for something that distinguishes itself from the feelings that it can subsist. It is our cognisance of the successiveness or transitoriness of feelings that makes us object intuitively to any idealism which is understood to imply an identification of the realities of the world with the feelings of men. Facts, we are sure, are in some way permanent. They are not "like the bubbles on a river, a moment here then gone for ever". But if they were feelings as we feel them, they would be so. They would not be "stubborn things," for as each was felt it would be done with. They would not form a world to which we have to adapt ourselves, for in order to make a world they must coexist, which feelings, as we feel them, do not. But the idealism which interprets facts as relations, and can only understand relations as constituted by a single spiritual principle, is chargeable with no such outrage on common-sense. On the contrary, its very basis is the consciousness of objectivity. Its whole aim is to articulate coherently the conviction of there being a world of abiding realities other than, and determining, the endless flow of our feelings. The source of its differences from ordinary realism lies in its being less easily satisfied in its analysis of what the existence of such a world implies. The mere statement that facts are not feelings, that things are not ideas, that we can neither feel nor think except contingently upon certain functions of matter and motion being fulfilled, does not help us to understand what facts and things, what matter and motion, are. It does not enable us, when we seek to understand these expressions, to give them any meaning except such as is derived from experience and, if from experience, then from relations that have their being only for an intelligent consciousness.

T. H. GREEN.

(To be continued.)

II.—MIND AND REALITY.

In an article in MIND XXIII., the present writer attempted a criticism of certain modern hypotheses concerning Reality. Destructive work being much easier than constructive, this second study attempts with some dread the task of considering the whole subject from another point of view. Yet the comfort for the writer lies in the fact that the thoughts here to be set forth are in the main not new. The need seems to be just now that certain ideas known, but in our age too much neglected, should be, not simply revivified, but rather reformed, to bring them into closer connexion with modern progress.

This study will fall into two parts. In the first we shall suppose our whole task to be the suggestion of a plausible, *i.e.*, of a simple, adequate, and consistent hypothesis about the nature of external reality. In the second part we shall consider more critically the nature of such hypotheses. In this first part, then, we shall suppose that, by a perfect theory of knowledge, the following result has been reached: Human beings are able to form ideas that correspond in some way with a real world, outside of themselves. That is, the sequence of human ideas corresponds to sequences of external events, or to relations of coexistence among external things. The necessary or uniform connexions of human ideas correspond to regular or to universal connexions among external things. Or, in the brief form of Mr. Herbert Spencer's phraseology, to each necessary relation $a : b$ in human consciousness, there corresponds a relation A : B in the external world. Suppose, then, that all this has been established. No one will admit more readily than the writer that this supposition is merely tentative. The theory of knowledge is yet to be completed, and between its conception and its realisation there are wide oceans of doubt. We shall in fact touch upon the problems of this theory in the second part of our paper. But for the moment suppose admitted what scientific thought generally takes for granted, *viz.*, the correspondence of inner and outer relations in such wise that the former are naturally copies of the latter. And, on this foundation, suppose that we intend to consider what hypothesis as to the nature of the related terms A and B in the external world is, on the whole, the most plausible.

I.

For the sake of avoiding controversy we may for the moment leave out of account two old questions. We cannot really escape either, and both will sternly confront us before we

get in at the door of the temple of certainty. But here at the outset we are playing with hypotheses, and may be absolved from the responsibility of securing ourselves beforehand from all possible attacks. The first is the question of the idealists: How can any reality be conceived unless as implying or including states of consciousness? For the moment we will waive the Berkeleyan contention altogether; for we are not now concerned to prove by metaphysical analysis the universal coincidence of consciousness and reality. We wish merely a plausible hypothesis to be advanced as to the nature of what more popular thought means by reality. The second question that at the outset we avoid is the one concerning the ground of the assumed agreement between the external and the internal orders of facts. Whether this ground lies in a causal determination of our consciousness by the external world, or in a pre-established harmony of both, matters not. We take our stand, then, upon the admitted facts of popular belief. Here are feelings, sequences of feelings, thoughts, trains of thought, systems of scientific belief: all internal facts. Beyond the consciousness of these internal facts stretches (so we now assume, and only assume) another world of facts, in which something corresponds to each one of these feelings, some order of facts to each sequence of feeling, some system of facts and of laws to each properly constituted system of beliefs. The external order of the world beyond corresponds to the order of this internal world of our consciousness, but is not this order. A plausible hypothesis is required as to the nature of this corresponding external order.

Many hypotheses have been suggested in answer to this requirement. The doctrine previously discussed, the doctrine of "Mind-Stuff," was such an hypothesis. Mind-Stuff was to be like in nature to consciousness; but by reason of the simplicity of its ultimate units, each of these was to be again unlike consciousness. For consciousness, it was assumed, is an aggregate of units; each unit by itself has only intensive quality, and, lacking complexity of content, is of course unconscious. Our consciousness, then, is employed in mirroring the complex relations in which the unconscious Mind-Stuff elements outside of us are involved. The usefulness of this hypothesis we have previously tested. But the motives that led to its formation are interesting. These motives were, one may fancy, twofold. There was the influence of Berkeley's argument, reiterated as it has been in so many forms. According to this argument, external reality can be consistently conceived only by assimilating it in nature to consciousness. The second motive was the expressed one of formulating in simple terms the phenomena of

evolution and of physiological psychology. The transition from the material to the conscious, the connexion of the psychical with the physical, could best be conceived by supposing the physical to be but a disguised or attenuated or very simple form of the psychical. The first motive, if it was really very active, we have decided to omit for the moment from consideration. The second and more expressly prominent motive we should consider responsible for the most faulty part of the theory, *viz.*, the undefined double-sided nature of these hybrid Mind-Stuff atoms, the fact that they try to appear among old-fashioned atoms as being quite dead enough for all the purpose of mechanics, while they show their ghostly selves at the gates of psychology, and in very thin voices, with very uncanny behaviour, try to convince us that they are after all really quite alive, and quite ready to take part in the building up of conscious mind.

The Mind-Stuff hypothesis lands us in a dilemma. Either our elementary atoms are as dead as those of Democritus; and then the whole problem of the evolution and the physiology of mind is unsolved: or they have such mental life that out of them complex consciousness can be built up; but then they are Monads, minds of more or less clear consciousness. And in that case, following the reasoning by which the Mind-Stuff theory itself was reached, we are led naturally to the hypothesis that every atom of matter is a little mind; not an intensive element of sensation, but a complex of many elements in a conscious unity of some sort, an apperceptive individual.

To such an hypothesis, be it noticed, we are led only when we accept the method and the premisses that led to the hypothesis of Mind-Stuff, and when we free the conclusion from ambiguity. But the hypothesis in question—that for which the atoms are little conscious souls, with a life of their own, like our human lives, only simpler—will hardly meet very soon with general favour. It is in fact complex and not plausible. And why? Though really better than the Mind-Stuff hypothesis, this other is unacceptable, because it asks us to assume the existence of a conscious reacting thinking being, where no symptom of reaction or of thought or of consciousness appears beyond the simple behaviour of an atom in the presence of other atoms. Better is this hypothesis, that is, more consistent and adequate than the Mind-Stuff hypothesis, because we can form some idea of how a Monad can exist, can enter into relations with other like Monads, can unfold itself, can even, under favourable conditions, develop into a higher order of being, become the theatre of a rational conscious life; while we can form no notion of complex interrelations among absolutely

simple and purely intensive sensation-elements, nor conceive how out of them a complex and united consciousness can be formed. But unsatisfactory is this hypothesis, because we are unwilling to admit a definite conscious life, individual and volitional like our own, unless we see some symptom of life and of volition more marked than an atom has yet shown. Above all, the mark of action with a purpose seems wanting in the case of an atom, whose velocity or whose combination with other atoms is not a reaction determined by any discoverable inner purpose, but simply the result of surrounding conditions modified by the simple nature of the atom. Arbitrary then and confounded seems the hypothesis of any definitely conscious Monad-atoms; for to explain the facts of experience such an hypothesis assumes a whole world of unknown and unknowable facts, *viz.*, the inner life and thought of what seem to us dead atoms. Yet, if arbitrary, the hypothesis is irrefutable. It is, as said, preferable to the Mind-Stuff doctrine; and its consistency, not to mention its poetic charm, will always keep it on the verge of speculative thought, recognised by a fanciful few, and ignored or despised by the common-sense many.

But have we exhausted the possible hypotheses as to the external foundation of the phenomena of experience? By no means. We must indeed pass over those for which the external world is the embodiment of an "Unconscious Mind"; and that simply because we shall look in vain among the volumes of glib writing upon this topic for any clear notion of what people mean by "unconscious mind". If by "unconscious mind" is meant what is generally called matter, we remain just where we were at the outset, with an inquiry before us as to what is the nature of the external fact to which corresponds our idea of matter. But if "unconscious mind" means aught else, then the term seems to be equivalent to "unconscious consciousness". For no idea of a reason or of a thought can be formed in such wise as to separate reason and thought from consciousness. Thought is a series of active conscious states; and all the ingenuity of generations of Von Hartmanns shall not induce us to corrupt our speculation with the monstrous marriages of contradictory notions whereof the "Philosophy of the Unconscious" seems so proud. Yet thus we are not done with hypotheses. Nor are we forced to go back to the vague and uncritical hypothesis that only matter, indefinable inexplicable matter, exists outside of our minds. Of the existence of matter we can give hypothetically some little account. At all events there is Berkeley's hypothesis, which as a mere hypothesis we can examine apart from any study of Berkeley's philosophical arguments for his idealism.

According to Berkeley there exist conscious beings, more or less like ourselves, of whom the head and father is God. Now external to all beings besides God there is a real world. This real world is made up of the eternal system of God's thoughts.

"When I deny sensible things an existence out of the mind, I do not mean my mind in particular, but all minds. Now it is plain they have an existence exterior to my mind, since I find them by experience to be independent of it. There is therefore some other mind wherein they exist, during the intervals between the times of my perceiving them; as likewise they did before my birth, and would do after my supposed annihilation. And as the same is true with regard to all other finite created spirits, it necessarily follows, there is an *Omnipresent Eternal Mind*, which knows and comprehends all things, and exhibits them to our view in such a manner, and according to such rules as he himself hath ordained, and are by us termed the *laws of nature*" (*Dialogues between Hylas & Philonous*, III).

This so familiar hypothesis of Berkeley is in part founded upon a thought that for the present we have agreed to neglect, *i.e.*, upon the notion of the external world as the *cause* of our internal impressions. Not being caused by myself, my ideas, reasons Berkeley, must have an external cause. And the only intelligible cause is an active spirit. Yet for our present purpose this thought is not important. We are not asking about the cause of our conscious states, but about the way in which we can most plausibly conceive of an external world corresponding to these states. The correspondence is assumed. Into its ground, be it pre-established harmony or physical influence, we do not just now inquire. Our only criteria of plausibility, causal explanation being dropped, are therefore adequacy, simplicity, and consistency. Is Berkeley's hypothesis consistent with itself, and is it the simplest hypothesis possible? Stripped of non-essential features, the hypothesis is that there corresponds to our consciousness another higher and farther-reaching consciousness, containing all that is abiding in our consciousness, and much more besides. This consciousness is in form and matter a rational spirit, having definite purposes in the creation and education of the various finite spirits. These purposes require for their accomplishment that our conscious states should within certain limits agree with this higher consciousness, correspond to it in form and to a certain extent. This correspondence constitutes what we mean by truth. There is no external world but this other consciousness.

To Berkeley, as we know, the essential part of this doctrine was the teleological part. That God's thoughts and our correspondence thereto result from and express God's purposes in creating the world, this was for Berkeley the main point to be proven. But if the theological element of the doctrine be for

the first left out of account, there is another part that we just now wish to hold fast. *Our thought is true by reason of its correspondence to the facts of an actual consciousness, external to our own:* this hypothesis has an interest apart from its origin and from its original use. Why in philosophy should we be afraid of doctrines because they have an association with some dreaded theological dogma, or with some enthusiastic and over-confident system of the past? About the nature of the external world we have at the outset nothing but hypotheses. Before we test them in any very exact way, we may with safety try to understand them. Perhaps what seemed the wildest of them all may turn out to be the very best. Because a certain hypothesis was put forward rather as a demonstrable and eternal truth than as an hypothesis, shall we reject it without further examination?

The hypothesis now before us is Berkeley's with the teleological element omitted, along with the causal. How this external consciousness comes to affect us, and why it takes just such forms as it does, we care not. This we ask: What is this supposed external consciousness? How does it correspond to our own? We shall not call the supposed consciousness by question-begging names. It is not for us just now either absolute or divine. It is simply consciousness, and external. The hypothesis is that truth consists in some kind of correspondence between our thought and this outer reality. What kind of correspondence?

Two conscious beings can have corresponding states of consciousness, without having like states. The notes of a melody could have corresponding to them the variations in intensity of some source of light. The light-flashes or beats would correspond to the notes of music by having the like rhythm; yet there would be no resemblance in the content. Correspondence may be yet more obscured. The dashes on a piece of paper that has passed under the point of a telegraphic pen, the series of characters printed from the press in a dozen languages, the sounds of the voice of a reader, the series of signals flashed from shore to a distant vessel, all these dissimilar series of events might correspond exactly and throughout, if it were their purpose to convey in various ways the same meaning. In order, then, that my consciousness should correspond to some other consciousness, external to mine, it is only necessary that for each event or fact in my consciousness there should exist some event or fact in the other consciousness, and that some relation existing among my conscious states should be like or parallel to the relation existing among the conscious states external to mine. The more numerous the points of resemblance between

the two series of states, the closer the correspondence. But correspondence in the abstract implies only some one definite and permanent resemblance found throughout the two series.

Such being the nature of correspondence in general, let us consider our hypothesis more in detail. Suppose that the clock yonder has some such reality as this hypothesis supposes. There is the clock, with its pendulum beating. For me now that clock is a combination of sensations, joined with a belief in certain possible sensations. For one in the same room with me, the clock has a like existence. But suppose that the clock has, apart from my consciousness, apart from the consciousness of any other human being or animal, an existence for some other, as yet undefined consciousness. Suppose that for this consciousness the clock in its whole present condition exists, not at all as a "possibility of sensations," but solely and in all its parts as a present group of sensible facts, standing in definite relations. Suppose that the sensible facts that constitute this clock as it is given to this hypothetical consciousness are in quality unlike the sensations that for me constitute the clock; but that in their relations, in their number, in their grouping, in their differences from one another, these sensible facts as they are for the hypothetical consciousness agree with the sensations and with the "possibilities of sensation" that for me constitute the clock. Suppose that the clock as it is in the hypothetical consciousness endures for a considerable time, and is called the real clock. Then when I shut my eyes or go away or die, there exists still the real clock, *i.e.*, the clock in the hypothetical consciousness. Though all my fellows die there is still the real clock, independent of our consciousness. The clock may for a time go on running; that is, in the hypothetical consciousness there may be a rhythm of sensible events, corresponding to what for me, were I present, would be the rhythm of the pendulum-beats and the movement of the hands.

Now suppose this hypothetical consciousness extended, so that it contains facts corresponding to my ideas of the ether-vibrations that fall upon or that are reflected from the face of this clock. Suppose that it further contains facts corresponding to each of my ideas of the relative position of this clock and of other objects. Suppose at last that the hypothetical consciousness is extended to all the facts of what I call my universe of actual and of possible sensation. Suppose that each possible or actual experience of each moment in my life or in the life of any other animal is represented by some actual momentarily present fact in the hypothetical consciousness. Then consider the hypothetical consciousness at any moment, and see what it will contain. Every material atom, every wave of ether, every

point of space, every configuration of material bodies, every possible geometrical relation, will be represented in the hypothetical consciousness by some definite fact. The relations of these facts will be in nature and in complexity similar to the relations among the facts of my actual or possible sensations. On the other hand, the limits of my possible consciousness at any moment will be the limits of the actual consciousness of this supposed universal Knowing One. What it actually knows, I conceivably might now know. If it is conscious of a certain series of facts, then I might be conscious, were I now on the other side of the moon, of living creatures there. If the hypothetical consciousness contains another set of facts, then I might be unable to find such living beings were I there. And so with all facts of possible experience.

We can easily see how, under this supposition, conformity to the supposed universal consciousness will become on my part a goal of effort. Knowledge of possible experiences is useful to me. But all possible experiences are or will be actual in the hypothetical consciousness. If I am standing near a concealed pitfall, or am in danger of a blow, or in danger of death from poison, that fact, translated into ultimate terms, means, we may suppose, that in the universal consciousness there is now the knowledge of certain relative positions and motions of atoms. The sequence of states in the universal consciousness must be supposed to be a regular sequence, subject to fixed law. But sequence does not now especially concern us; since we speak only of the nature of this external consciousness. It is enough, therefore, to point out that this supposed universal knowing consciousness, this "Not-Ourselves," has, under the conditions stated, all the essential characteristics of a real world. It is beyond us; it is independent of us; its facts have a certain correspondence to our sensations. Under the supposition that by nature we tend to be in agreement with this consciousness, progress in the definiteness and extent of our agreement with it may be both possible and practically useful. This agreement would constitute truth. No other real world need be supposed behind or above this consciousness. Rejection of an old theory and acceptance of a new, as when the Copernican doctrine replaces the Ptolemaic, will mean the growth of a belief that the new system of ideas corresponds more nearly than the old, not with dead matter, but with the sequence of states in the universal consciousness. The universal consciousness itself will be no illusory consciousness. It will not need a further consciousness to support it. It will need no dead matter outside of it. Our nature leads us to look up to it as to our model. Itself is the pattern, looking up to no other model. The purpose of thought

will be conformity with this perfect, untrammeled thought. For us there is a little range of actual sensation, in the midst of a vast ocean of possible sensation. For the universal consciousness there are at any moment only actual data. We see the clock-face; and for us the inside of the clock is possible sensation only. For the supposed consciousness the inside will be as much present as the outside. For us colours and odours suggest possible sensations, which science interprets as being in the last analysis the possible sensations known as atoms, motions, velocities, distances. For the universal consciousness, these atoms, motions, velocities, and distances, or the ultimate facts to which these notions correspond, are not possible but actual data. There need be then, in the last analysis, no dead unconscious atoms, nor yet unconscious little atom-souls, striving, fighting, loving, uniting; there need be in the last analysis only a consciousness of facts corresponding to what we mean by motion, velocity, extension, distance, impenetrability. Corresponding to the relation $a : b$ in our consciousness there will then be the external fact A : B, whereof so much is supposed to be known: first, that the relation $a : b$ is somewhat like the relation A : B; secondly, that the terms A and B, whatever their particular character, are facts for a consciousness, and nothing but facts for a consciousness. And the hypothetical consciousness for which these facts are all present, together with their manifold relations, this we may call a World-Consciousness. An illusion for my consciousness will mean a failure to correspond with the world-consciousness. A truth for my consciousness will be a relation $a : b$ that corresponds with some relation A : B in the world-consciousness. But for the world-consciousness itself there will be no question of its own truth or falsity. It will be for and in itself. It will not have to create a real world, it will be a real world. It will not have a Nature as its own Otherness, over against itself. It will be in its own facts and in their sequence a nature. It will bear no mystical relation to the individual intelligences, as if they were its "emanations" or its "modes". It will be in and for itself, as independent of them as if they were not. They will be self-existent, devoid of any such unreality as the mystics like to give them. But their whole business and purpose will be to carry out and to make full and definite that correspondence with this universal consciousness upon which their existence and their peace depend. A certain lack of correspondence with the universal consciousness on the part of any animal's ideas will be followed by the cessation of that particular grouping of facts in the universal consciousness that is known to us as this animal's body. With the dissolution of this animal's body will

cease his consciousness, his chance of disagreeing in his states with the states of the universal consciousness, and therefore his lack of correspondence. An ultimate law of sequence, with which, as with all causal connexion, we have here nothing to do, thus binds the individual beings to the World-Consciousness. The whole universe exhibits the phenomenon, first, of one great consciousness, embracing an infinitude of geometrical, physical, chemical, physiological facts, and, secondly, of a vast multitude of individual conscious beings, whose number and sorts we shall never be able to tell, whose destiny, however, demands of all of them a more or less imperfect likeness between their states and the relations thereof on the one hand, and the facts of the universal consciousness on the other hand. The universal consciousness, be it noted, is so called merely as including in its ken all ultimate mathematical and physical facts. Of its nature beyond this we pretend to suppose nothing. And it does not include within itself the individual conscious beings. Our hypothesis is not pantheistic, or theistic. We simply suppose a "Not-Ourselves" that includes all natural knowledge. This is the External Reality.

We have omitted all reference to the teleological element that is generally introduced into any theory of a World-Spirit. So far, in fact, our World-Consciousness is not what people mean by a World-Spirit. A Spirit, "weaving the living robe of Deity," our World-Consciousness is not; for as so far described it does nothing, it merely looks on. It looks at its own states, and these are supposed to be altogether its own, given from no higher source. But as to their succession or their worth, their beginning or their end, we have said nothing. This Consciousness has these states, but we have supposed them to be attended by no emotion of pleasure or of pain, by no modifying reaction of will. This consciousness is not a Creator, it is a Seer. As for the individual conscious beings, it does not make or unmake them by an exercise of power. They, on the contrary, are made and unmade according as there arise or disappear in this universal consciousness certain groups of data that, as represented in our mortal thought, are called organic living bodies, with tissues, motions, structures, functions. These groups pass, and with them the individual consciousness that coexisted with each. This growth and decay is simply a law of experience, an ultimate and inexplicable sequence. But the universal consciousness of nature, for which each of these groups of physical facts existed, that remains. In other words:—Each animal body is represented in the universal consciousness, and exists only in so far as it is represented therein, or is known to its possessor or to other animals. The individual mind that coexists with this

body, has no representative in the universal consciousness, but exists and is real for itself. With the group of facts in the universal consciousness to which, as we say, corresponds our idea of the body, the independent group of facts called the animal's mind lives and dies. The universal consciousness and the individual minds make up together the sum total of reality.

Continuing to mention the consequences of our hypothesis, we see that the well-known questions so often asked of idealists are no longer puzzling when we accept such an idea as the foregoing. Such questions are: What existed before there was any conscious life on the planet? In what sense was there light or heat, matter or motion, before there were eyes to see, tactile organs to feel, animal intelligence to understand these external facts? The question of Kant too about the subjectivity of space would seem to have been answered. Before there were conscious beings on this planet, this planet existed only in and for the universal consciousness. In that consciousness were facts corresponding to all the phenomena, or possibilities of experience, that geological science may declare to have really existed at such a time. When the earth became filled with life, there appeared in the universal consciousness the data known as organisms. And at the same time, beside the universal consciousness, beyond its ken, there arose individual conscious beings, whose states were more or less imperfect copies of the universal consciousness in certain of its facts. Even so, empty space is now existent beyond the borders of finite observation only as a group of states in the world-consciousness. Space is subjective, belonging to the states of the universal consciousness; and yet to us objective, since in thinking it we merely conform ourselves to the universal consciousness. But the consequences of our hypothesis are numberless. Enough has been said of them for the present purpose.

Wild and airy indeed! But why so? Mind-Stuff was a worse hypothesis, because, when you tried to express all its consequences, it became unintelligible. The ordinary uncritical Atomism is a worse hypothesis, because we never get from it the least notion of how this eternally existent matter may look and feel when nobody sees or feels it. The mystical "one substance with two faces" is worse, because that is no hypothesis, only a heap of words. Schopenhauer's *Wille* is worse, because it is only a metaphor. The hypothesis that ascribes to the atoms independent life and volition is no more adequate than our hypothesis, and much less simple. The old-fashioned pantheistic *Welt-Geist* of Schelling and of the romantic philosophy generally is more poetical than our hypothesis, but yet worse for all that; for no one ever comes to understand how this One Spirit is re-

lated to the many individual minds. They are parts of him, or else apart from him. In the one case their invincible confidence that they really exist and are not "things in his dream," is unfounded; in the other case his all-embracing unity is destroyed. In our hypothesis nothing is wonderful but the one miracle of a series of orderly conscious states, following through all time according to fixed laws. Beyond that all is clear. That there should be a consciousness containing ideas of all material relations, is no harder to believe than it is to believe in the ordinary unintelligible world of atoms. That beside this consciousness and in fixed relation to its facts there should exist a great number of different series of conscious states, each series being called an individual, this is no harder to believe than are the ordinary facts of nervous physiology. In reality this hypothesis gives us a simple expression, easily intelligible, for all the facts and laws of physics, of nervous physiology, and of consciousness. Take, as a final example, the man looking at the candle. In the world-consciousness there is the group of states c, c', c'' . . That is the real candle. In the world-consciousness there is also the group of states h, h', h'' . . That is the "cerebral image" of the candle, a physiological fact. Finally, according to the laws of reality, the existence in the world-consciousness of the facts h, h', h'' . . grouped as they are, has co-existent with it the group of ideas C in the man's mind. This group C corresponds more or less completely to the group c, c', c'' . . as that group exists beyond the man's mind, in the world-consciousness. The group C is the man's idea of the candle. Such is our hypothesis in a nut-shell. We urge for the moment only this in its favour: that it is simple, intelligible, plausible. After all it is but an hypothesis.

II.

But of what use all these hypotheses? They are not philosophy, but at best merely the scaffolding of philosophy. Ontology is play. Theory of Knowledge alone is work. Ontology is the child blowing soap-bubbles. Philosophical analysis is the miner digging for gold. And yet not quite that is ontology. Not all play this occupation of mankind for so many centuries. Ontology, to speak quite carefully about it, is not philosophy, but an education of the philosophic spirit. Had we but the foregoing hypothesis to offer, this article should never have been written. We have suggested and developed the hypothesis merely that in a pure and somewhat simple form we might express the nature of human thought about reality. This nature of thought once grasped, our hypothesis about

reality will become transformed into a philosophical theory of reality. A dogmatic statement prepares us for a critical analysis.

The first impression of one that has fairly comprehended the foregoing hypothesis as to the nature of reality will be that, if an "idealistic" hypothesis, this one is at all events as ethically unsatisfactory as the coldest materialism. Of the aims, of the will, of the worth of this universal consciousness we have been able to say nothing. It was not a Spirit. It was not a product of human desire. It was the material world simply transformed into ideas. All the cold and deadness of inexplicable eternal law in the succession of phenomena was there, unrelieved by any trace of an emotional element. It was mind, but inhuman mind, recalling the address to the "Todesgötter" in Schiller's *Jungfrau*:—

> "Bei euch dort unten in der ew'gen Nacht,
> Da schlägt kein Herz mehr, da ist alles ewig,
> Steht alles unbeweglich fest."

This fact is noticed to ward off the suspicion of any ulterior designs hidden by this our hypothesis. The meaning of the fact may appear before we finish. But now to the philosophic task of testing our hypothesis.

Every belief about an external world is an active assumption or acknowledgment of something more than the data of our consciousness. What is directly given in consciousness is not external. All direct data are internal facts; and in the strictest sense all data are direct. Suppose a merely passive acceptance of what is in consciousness, and you have no belief in an external world. An addition to the data of consciousness, a more or less clearly voluntary reaction, is necessary to the idea of external reality. The truth of this principle appears when our belief in any particular external thing is called in question. I hold that I see yonder a snowy mountain. My companion insists that beyond the wide misty valley there is to be seen only a grey cloud. I reassert my belief, and in the reassertion feel more definitely than at first the active addition of my own belief to the meagre data of sense. The addition existed, however, in my first assertion. Or again, one man is trying, perchance in sport, to make another doubt the existence of material objects. "There is no external reality," says the first. "There are but these states of consciousness in our minds. Nothing beyond them corresponds to them." The second, maintaining the position of the man of common-sense, retorts sharply:—"Doubtless I cannot refute altogether your fine-spun arguments; but they are nevertheless nonsense. For I persist in believing in this world of sense. I live in it, I work for it, my fellows believe in it, our hearts are bound up in it, our success depends upon our

faith. Only dreamers doubt it. I am not a dreamer. Here is a stone; I hit it. Here is a precipice; I fear and shun it. My strongest conviction is concerned with the existence of this world of sense. Do your worst; I am not afraid of talk." Thus then by every device of the active spirit, by reminding himself of his most cherished interests, of his affections and hatreds, by arousing his social sentiments, by bodily acts, the practical man preserves himself from fantastical speculation. When better-trained thinkers call the belief in an external reality "a natural conviction, to be retained until we are compelled to abandon it," or "a convenient working hypothesis, to be received on the testimony of consciousness, testimony assumed to be trustworthy until the opposite is proven," what are these but similar practical considerations, appeals to the will? Concerning data of immediate consciousness such remarks would be wholly out of place. That I see a certain colour at this moment is not a "convenient working hypothesis". Is consciousness merely a "presumably trustworthy witness" when it testifies to the pangs of toothache? Nobody could balance evidence as to the reality of his sensation *quâ* sensation when consciousness is filled with the sound of a street-organ. Sound, colour, pang, these are data, not merely things believed in. But the external world—that is actively accepted as being symbolised or indicated by the present consciousness, not as being given in the present consciousness.

In short, every assertion of an external world, being an assertion of something beyond the present data of consciousness, must spring from an activity of judgment that does more than merely reduce present data to order. Such an assertion must be an active construction of non-data. We do not receive in our senses, but we posit through our judgment, whatever external world there may for us be.

All theories, all hypotheses as to the external world ought to face this ultimate fact of thought. If the history of popular speculation on these topics could be written, how much of cowardice and shuffling would be found in the behaviour of the natural mind before the ultimate question: "How dost thou know of an external reality?" Instead of simply and plainly answering: "I know the external world only as something that I accept or demand, that I posit, postulate, actively construct on the basis of sense-data," the natural man gives us all kinds of vague compromise answers: "I believe in the external reality with a reasonable degree of confidence; the experience of mankind renders the existence of external reality ever more and more probable; the Creator cannot have intended to deceive us; it is unnatural to doubt as to external reality; only young

people and fantastic persons doubt the existence of the external world; no man in his senses doubts the external reality of the world; science would be impossible were there no external world; morality is undermined by doubts as to the external world; the immovable confidence that we all have in the principle of causality implies the fixity of our belief in an external cause of our sensations". Where shall these endless turnings and twistings have an end? The habits of the law-courts as condensed into "rules of evidence," the traditional rules of debate, the fashion of appealing to the "good sense" of honourable gentlemen opposite, the motives of shame and fear, the dread of being called "fantastical," Philistine desire to think with the majority, Philistine terror of all revolutionary suggestions, the fright or the anger of a man at finding some metaphysician trying to question what seem to be the foundations upon which one's breadwinning depends: all these lesser motives are appealed to, and the one ultimate motive is neglected. The ultimate motive is the will to have an external world. Whatever consciousness contains, reason will persist in spontaneously adding the thought: "But there shall be something beyond this". The beyond can never be proven, because never verified. Verification is transformation of non-data into data. The external reality as such (*e.g.*, the space beyond the farthest star, any space not accessible, even whatever is not at any moment given in so far as it is viewed from that moment, in particular every past event) is never a datum. But the very nature of the postulate of external reality both forbids and renders needless the actual verification. We construct but do not receive the external reality. The "immovable certainty" is not such a dead passive certainty as that with which we receive a pain or an electric shock. The certainty of an external world is the fixed determination to make one, now and henceforth.

But we make, be it noticed, only when we have material with which to make. The sense-datum at any time suggests what external reality we shall at that moment conceive. But without the spontaneity the sense-datum would be no indication to us of an external fact. This being the general truth, there arises the special question, so often discussed: What relation does the external reality bear to the sense-datum? Do we conceive this external reality as being primarily the cause of our consciousness, or as being primarily the external counterpart of consciousness? If the first, the external reality need not resemble consciousness; if the second, this reality must be conceived as resembling consciousness.

Modern thought seems at first sight to have decided this

question once for all. The ether-waves that cause but that do not resemble colour-sensations, the molecular vibrations that have no likeness to the feeling of heat, seem decisive of the whole matter. But if these instances indicate a disposition to regard external reality as the cause of consciousness, and as therefore possibly wholly unlike consciousness, they also equally indicate a disposition to regard our thoughts as destined to copy more or less perfectly an external reality. I have a sensation *a*, supposed to be caused by the wholly unlike molecular vibration V. But of the external fact V I have an idea *v*. And this idea is supposed to resemble the external thing. V is not the direct cause of *v*, but only of *a*. Yet V resembles *v*. The resemblance of *v* and V—is that known through the postulate of causality ?

Doubtless the answer will be made that the resemblance of *v* and V is known or believed by means of a course of reasoning that throughout depends on the postulate of causality. " If," some one may say, " I assumed no external cause for *a*, I should never reach the idea of this cause as being the particular group of molecular vibrations or of ether-waves known to me as V, and conceived by means of the idea *v*." But, on the other hand, we may rejoin, if I conceived of the external reality solely as the cause of *a*, not as having any necessary likeness to any idea that I might form, how should I ever render definite my idea of the cause of *a* ? The external reality would remain what it was at the outset, an unknown postulated cause of our conscious states. No labour would ever make it knowable. At every step of the process by which I proceed, from the sensation *a* to the definite idea *v* of its cause V, I depend for my progress on the assurance that external reality is with me, not merely as the unknown cause, but as the counterpart of my conscious states. This whole process involves, for example, constant accumulation, classing and sifting of experiences. Any text-book on Heat, on Optics, on Physiological Psychology, will illustrate sufficiently what is meant. But how is the accumulation of experiences possible ? Only through constant backward reference in consciousness, and so only through constant assumption that present conceptions are adequate representatives of past experience. Now, if we are serious with ourselves, we shall find that truly past experiences, of whatever kind, are as much truly external facts, when viewed from the present moment, as are the sodium and hydrogen in the sun, or the buttons on our neighbour's coat. The past is not a present datum, otherwise it would not be past, but present. The past is postulated as an external reality. Now this or that past event is indeed a cause of my present consciousness of some event ; but my confidence that

there has actually been a series of past events is not a judgment of causality. I believe in a past as I believe in a future, not to satisfy my faith in the principle of causality, but to satisfy my tendency to postulate an indefinite time-stream, like in nature to my present succession of immediately given states. I believe in a real time, not primarily as the cause but as the counterpart of my notion of time. How otherwise shall I form the idea of a cause at all, unless I have already assumed the reality of time? A cause for my belief in the past is to be conceived, if at all, only as already a past fact. The conception that it is to create is a condition of its own existence, unless indeed one has admitted what we wish admitted, that, however the case may be with the belief in any one past fact, the belief in past reality as such is prior to our belief that our present state has been caused by the past. But the same priority of the belief in some agreement between my idea and the external reality, is found in all departments of thought. A material cause of my experience is a cause in space. But, however I came by the idea of space, my present belief in the reality of space precedes any particular belief in a material cause for a particular sensation, and renders the latter belief possible. The conception of reality furnished by the search for causes is thus always subordinate to the conception of reality furnished by our first postulate. This first postulate is, that our ideas have something beyond them and like them. So at each moment of my life I postulate a past and future of my own, like my present consciousness, but external thereto. So my social consciousness, my original unreflective tendency to work with and for other beings, implies the postulate of the external existence of my fellow-men, like myself and like my ideas of them. So to the present intuition of the space in the retinal field or at my finger tips I join the postulate of an infinitely extended not perceived space, like the perceived space, and like my space-ideas.

The external reality conceived by us is therefore conceived through a spontaneous reaction of the receiving consciousness in presence of the sense-data received. The forms of this reaction it is the purpose of the Critical Philosophy to define. The task set by Kant has not yet been accomplished. But the fact of some reaction seems established. And the general law of the process seems to be that the external reality is conceived after the pattern of the present data, with such modification as is necessary to bring the conception into harmony with already established habits of thought, and with the conceived results of previous experience. The aim of the whole process seems to be to reach as complete and united a conception of reality as is possible, a conception wherein the greatest fulness of data shall

be combined with the greatest simplicity of conception. The effort of consciousness seems to be to combine the greatest richness of content with the greatest definiteness of organisation.

This character of our activity in forming our notion of reality implies the subordination of the causal postulate to other motives. In the scientific field the postulate of Causality is predominant, because there the notion of a world of uniform sequences in time and in space has been already postulated, and what remains is to fill out the picture by discovering the particular sequences. But if I try to banish altogether from my notion of external reality the idea that it is an adequate counterpart of my subjective states of consciousness, what will remain? Simply the notion of an utterly unknowable external cause of my sensations. Of this nothing will be said, but that it is. Science, experience, serious reflection about reality will utterly cease. I shall have remaining a kind of Disfigured Realism, where the real will be an unknowable, as unreal as possible. But reintroduce the omitted postulate, admit that reality is conceived as the counterpart of consciousness, and then the principle of causality can be fruitfully applied. Then indeed experience may lead us to conceive the external reality as unlike this or that suggestive sensation, unlike this or that provisional idea. But we shall be led to new conceptions, and shall be able to make definite progress, so long as we postulate some sort of Likeness between inner and outer.

In brief, as causality means uniform sequence, the acceptance of any causal relation as real involves a conception of the uniform sequence that is to be accepted. When finally accepted, the sequence in question is conceived as a real fact, wholly or partially external to present consciousness, but like our present idea of itself. Causal sequence cannot therefore be placed first, as giving us a totally undefined notion of an external reality; but second, as enabling us to develop in detail the idea that reality is like our own states of consciousness. Of course to prove by actual verification that the external reality is like our states of consciousness, this we can never accomplish. But from the outset we have seen that verification is in this field impossible. The whole of external reality, past, present, future, all that is outside of what one now sees and feels, all space, time, matter, motion, life beyond this immediate experience,—all that is for each one a postulate, a demand, an assertion, never a datum, never as a whole verifiable. Since we believe in this external reality, if experience suggests with sufficient force the idea that some causal sequence is real, our postulate that such suggestions have their counterpart in an external world leads us to regard the conceived causal sequence as an externally real

fact. Not however do we first conceive of the external reality as cause, and then in the second place only find it to be or not to be the counterpart of present consciousness. All our thinking is based on the postulate that the external reality is a counterpart and not merely a cause. If with time, we drop anthropomorphic conceptions of external reality, we do so only because, in the presence of a larger and fuller experience, we no longer find old conceptions, founded largely on lower forms of emotion and on narrower experience, adequate to our notion of the external counterpart of consciousness. For demons and entities we substitute atoms and etherial media, not because we abandon the position that external reality resembles our ideas, but because wider experience is found to be best reduced to unity by the latter, not by the former ideas. The atoms and the media are themselves only provisional notions, since more experience may be better reduced to unity, for all we yet know, by some other ideas. But throughout remains the postulate: external reality is somewhat like our ideas of its nature.

We have been betrayed by the doctrine that we have combated into forms of speech that do not adequately express the Critical notion of reality. We hasten to complete our conception by adding the omitted elements. External reality is like our conceptions of it: so much, we have seen, is universally postulated (postulated, be it noticed, not directly experienced, not forced upon us from without). But the kind of likeness still remains to be defined. Can the external reality be conceived as being, although in nature like our conscious states, yet in no necessary relation to consciousness, as being neither a consciousness nor for a consciousness? The answer is the whole struggle of idealistic thought, the whole progress of philosophical analysis in modern times. One cannot go over the field again and again for ever. The state of the controversy can be roughly stated thus:—When the notion of external reality is based solely upon the application of the notion of causality, all degrees of likeness or unlikeness between thought and things are assumed, according to the tastes of individual thinkers. External reality is once for all absolved from the condition of being intelligible, and becomes capable of being anything you please, a dead atom, an electric fluid, a ghost, a devil, an Unknowable. But if the subordinate character of this postulate of causality is once understood, the conception of reality is altered. What is real must be not only vaguely correspondent to an ill-defined postulate, but in a definite relation of likeness to my present consciousness. That this is the actual postulate of human thought is shown by those systems themselves that ignore the postulate of likeness, and has been illustrated in the foregoing. But what forms does

this postulated likeness take? For the first, the postulated likeness between my idea and the external reality may be a likeness between my present conscious state and a past or future state of my own, or between this present state and the conscious state of another being. The whole social consciousness implies the postulate of a likeness between my ideas and an actual consciousness external to mine, fashioned in my own image. But the second generally recognised form in which the postulate of the likeness of internal and external appears, is the form according to which I postulate that a present idea of my own is not like one of my own past or future states, not like any actual past or future state in another being of my own kind, but like a possible experience. That our ideas can adequately express possibilities of sensation that are actually never realised, either in ourselves or in any other known creature, this is a familiar postulate of natural science. The laws of nature are generally, as is admitted by all, what Lewes called "ideal constructions," expressing experiences for us never realised, but permanently possible. And so extended is the use of the concept of possible experience, that, as we know, Mill in one of his most interesting chapters, gave "permanent possibility of sensation" as an adequate definition of matter.

Now the position of modern phenomenism is, that by these two postulates or forms of the one postulate of Likeness, the whole notion of external reality is exhausted.

The external world means, according to this position, the possible and actual present, past, and future content of consciousness for all beings. And this result of modern phenomenism we accept. As for the detailed proof, we cannot go over that well-beaten battle-field here. More or less purely the position is maintained by the whole army of modern idealists. The position is maintained in Fichte's *Bestimmung des Menschen* and other shorter philosophic essays (less clearly, we think, though much more at length, in the two larger expositions of the *Wissenschaftslehre*), in the Hegelian *Phänomenologie*, in Schopenhauer's *Welt als Wille und Vorstellung*, in Ferrier's *Institutes of Metaphysic*, in J. S. Mill's *Examination of Hamilton*, in Mr. Shadworth Hodgson's *Time and Space* and *Philosophy of Reflection*, in M. Renouvier's *Logique Générale*, in lesser books innumerable, *e.g.*, in Prof. Baumann's *Philosophie als Orientirung über die Welt* (in the first chapter), in Prof. Schuppe's *Erkenntnisstheoretische Logik*, in Prof. Bergmann's *Reine Logik*. Not of course that all this multitude of thinkers, different in method, in ability, in aim, in everything but in the fact that they are post-Kantian idealists, would accept the foregoing statement as a fairly complete account of their doctrines. Some of them would laugh at the

simplicity of our terms. But, we maintain, in substance they all agree about one fundamental truth, *viz.*, that thought, when it inquires into its own meaning, can never rest satisfied with any idea of external reality that makes such reality other than a datum of consciousness, and so material for thought. Sensualism and the most transcendent *a priori* speculation agree in coming at last to flee in ceaseless unrest from every support for an external reality that may seem to offer itself beyond the bounds of consciousness. This phenomenism of post-Kantian speculation we accept.

All external reality is then postulated as being not merely like conscious data, but in truth an actual or a possible datum of some present, past, or future consciousness. But there remains in this definition of the postulate still one obscure point. What is meant by possible consciousness? What can there be for consciousness beyond the grand total of all actual past and future states of consciousness in all beings? For what purpose and by what right shall we build a world of possibility above or beside the world of actual experience? This question seems too little appreciated and too much evaded by most thinkers. When Mill called matter a "permanent possibility of sensation," he left room open for the puzzling question: But what is this creature called a possibility? Is it an actual fact? Then what actual fact? If not actual, then in being a mere possibility matter is non-existent.

This scholastic character of the abstract noun "possibility" was remarked and criticised by Prof. Max Müller in an article in MIND III.[1] We shall not find in most writers on this subject less scholastic or better defined terms for naming the same aspect of the postulate of external reality. In fact, if we suppose that one surveys the whole range of actual consciousness, past, present, and future, and postulates no facts that are not for and in consciousness, it is difficult to see what will be the meaning of any added "possible reality". Possible, for the first, is anything that one conceives, in so far as one conceives it at all. I could possibly have wings and a long tail, an hundred eyes, and a mountain of gold. All that is possible, but in what sense? In this sense, that I do actually imagine myself as possessing these things. "Empty possibilities," or "im-

[1] P. 347: "If therefore Mill and his followers imagine that by defining Matter as the permanent possibility of sensation, and Mind as the permanent possibility of feeling, they have removed the difficulty of Kant's *Ding an sich*, they are mistaken. Their possibility of sensation, if properly analysed, means things or substances which can become objects of sensation." Prof. Müller's result is not one that we can wholly accept; his criticism of the word possibility is important.

aginations as one would," are facts of consciousness in so far forth as they are imagined; and they have no other existence. The world of truth is not enriched by these possibilities, whose whole existence is in the actual conscious idea of them. But not in this sense is matter to be a "permanent possibility of sensation". The icebergs in the polar seas are to be real, not in so far as I now imagine them, but in so far as there exists or holds good the law, that were I present, I should see them, were I to touch them I should feel them, and that both seeing and feeling would be determined in certain ways beyond the control of my will. The pages of that closed book, the bones inside the body of that cat, my own brain, the molecules of the oxygen that I am breathing, all these, in so far as they are not now actually in any consciousness, are to be still real as "possible experiences". But what kind of unreal reality is this potential actuality?

If we inquire into the motive that leads us to postulate these possible experiences, we shall find it to be at least in part the effort to apply the postulate of uniformity to our confused actual experience. Our actual experience is not always governed by obvious laws of regular sequence. But in postulating consciousness beyond our own immediate data we are led, by a certain prejudice in favour of unity and simplicity, to postulate that the real successions of facts are uniform, whatever may be the case with the fragments of reality that fall within our individual experience. I see an apple fall, and no more than that. But I postulate that if I could have had experience of all the facts, I should have observed a series of material changes in the twig on which the apple hung, that would have sufficed to restore the broken uniformity and continuity of my experiences. In this way it is that, as remarked above, the conception of causal sequence does not create, but organises and perfects our notion of external reality. There is something beyond our experience, *viz.*, another experience: that is the first postulate. Experiences form an uniform and regular whole of laws of sequence. That is the other postulate, subordinate to the first. This postulate helps to form for us our idea of the material world beyond individual consciousness; an idea that science accepts for its uniformity, without inquiring further into its nature, while a more critical reflection declares that the facts assumed as existent beyond the range of individual conscious beings are "possible experiences".

If we try to express the nature of this assumption of "possible experiences," we must therefore take account of the fact that they are assumed to satisfy the secondary and subordinate postulate of uniformity, by filling up the breaks and gaps in the postulated actual experiences of ourselves and of our fellow-

beings. They lead us therefore to the conception of one uniform absolute experience. This absolute experience, to which all facts would exhibit themselves in their connexion as uniformly subject to fixed law, is conceived as "possible". But once again, what does that mean? Is the meaning only the empty tautology that if all the gaps and irregularities of individual experience were got rid of by means of connecting links and additional experiences, these gaps and irregularities would disappear? Is the meaning only this, that if there were an absolute experience of an absolutely regular series of facts, this experience would be absolute and uniform? Or again, is it enough to say that any possible experience, an iceberg in the polar sea, my brain, the inside of yonder book, exists for me only as "my representation"? Of course, I know of it only what I conceive of it, yet I postulate that it has some reality beyond my representation. This postulate is for us in this discussion an ultimate fact of which we want to know, not the justification (for there is none higher than the fact itself of the postulate), but the meaning. I know of my fellow only what I conceive of him. Yet I postulate that my conception of him is like him, whereas I do not postulate that my conception of a dragon is like any real animal. Just so I postulate that my conception of the "possible experience" called an atom or the North Pole, is valid beyond my experience, and beyond the actual experience of any known animal. But I do not postulate that my conception of the possibility that future men might have wings and tails is like any future reality whatever, or in any way valid beyond my conception.

Here then is our dilemma. Matter as a mere possibility of experience is more than any animal's known actual experience. And yet this matter is to be real for consciousness. Nor is it to be real for consciousness simply in so far as the possible experience is represented or conceived. The reality consists not merely in the representation in present consciousness of a possible experience, but in the added postulate that this conception is valid beyond the present consciousness. How is this postulate to be satisfied?

Let us sum up the conditions to which our notion of external reality is subject. External reality is something postulated, not given; it is for us because we will it to be. To a portion of our conscious states we ascribe a validity beyond the present. This ascription of validity is the source of our whole knowledge of the external world: *e.g.* of our belief in our own past and future states, in our neighbour's existence, and in the existence of space, of matter, and of motion. The external reality is always conceived as more or less completely the counterpart of our idea of

it and, hence, as in nature like the facts of our consciousness. The idea that we at any moment form of the reality beyond ourselves is the expression of the effort to reduce to unity the present sense-data and the present conception of our own past experience. This reduction to unity takes place in certain forms. Thus we conceive the external reality as in space and in time, and, in the second place, as in causal relation to ourselves. The conception of causal relations thus projected into the external reality becomes, when completed, the conception of a completely united and uniform whole of facts. We conceive the external reality as subject to fixed laws of sequence, certainly existent, even though, in our limited experience, they be undiscoverable. As subject to such laws the external reality is a whole, possessing organic unity. But the external reality is also conceived as being real for consciousness and real only for consciousness. The external reality, being an organic whole, must therefore be conceived as the object of an absolute experience, to which all facts are known, and for which all facts are subject to universal law. But there thus arises an obscurity in our theory of reality. The real is to be only for consciousness. Consciousness is, however, postulated only as existent in our fellow-beings. And yet the postulated reality is to be an organic whole, containing series of facts that to these beings are known only as possible, not as actual experiences.

We are then in this position. To complete our theory, we "want a hero". Not, to be sure, a Don Juan, but an hypothetical subject of the "possible experiences". This hypothetical subject we shall postulate only as an hypothesis. That is, its existence is not a necessary result of the postulate that there is an external reality. One can form other hypotheses. But this hypothesis has the advantage of being simple and adequate. Moreover, to assume a consciousness for which the "possible experiences" are present facts, is to do no more than our theory seems to need; whereas any other hypothesis (Berkeley's theological hypothesis, for example, in its original form) seems to assume more than is demanded by our purely theoretical conception of reality. For the sake then of expressing one aspect of our fundamental postulate, we shall suggest what of course never can be proven, that all the conceived "possible experiences" are actual in a Consciousness of which we suppose nothing but that it knows these experiences, or knows facts corresponding in number and in other relations to these experiences. This Consciousness is the Universal Consciousness of the first part of our paper.

The cold and deadness of this universal Knowing One is thus explained. We do not endow it with life and with will; and

that because for our present purpose to endow it with knowledge is enough. We do not give it physical power over its own phenomena, or over the lives of individual beings; because we now need it only to complete our conception of an absolute experience. The conception of causality is, as we have seen, subordinate to the conception of reality. Causal sequences, seen in the absolute experience, will appear only as ultimate facts of sequence, uniformities that have not been formed, laws without any law-giving force above them, truths and not deeds. For our present purpose, that is enough. But our hypothesis is plastic. An ethical theory of reality, if such can be established, has but to speak the word, and our Universal Consciousness will be transformed into what he now is not, an active Spirit. To his infinite intuition he will join infinite power, and will not only see but make his own states. For the present nothing of this appears. No heart beats in the world; but that is only because no heart beats in any theory as such. If for another philosophy this Universal Consciousness becomes creative, his action will not interfere with his knowledge. It is with his knowledge alone that we are now concerned.

And thus we come to see the meaning of our hypothesis. It is not an attempt to give a psychological explanation of our consciousness, but to express in a simple form, though not in the only form, our natural postulates about external reality. Its value lies not in itself, but in the convenient expression that it gives of the purposes of human thought. It is not a demonstrable truth, but, as the writer holds, a convenient expression of one side, the theoretical, of our postulates about reality. In such a sense our hypothesis may serve, if it has the good fortune, to express some of those motives in the formation of our ideas of reality that were so well stated in Prof. James's article on " The Sentiment of Rationality," in MIND XV.

At all events it seems well to show that an idealistic theory of reality is possible that, on the one hand, adequately expresses the postulates of natural science and, on the other hand, avoids any tendency to mingle unduly the ethical with the theoretical, the teleological with the physical. Be it understood then that the writer is fully conscious of the indemonstrable nature of the hypothesis advanced, in so far as it is an hypothesis, and that he admits, in fact insists, that the value of such hypotheses lies not at all in themselves as ontological speculations about an Absolute, but in their success as expressions of the fundamental postulates and purposes of that source of all truth, Conscious Thought.

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III.—THE LOCALISATION OF FALLACY.

As a baby feels pain but cannot localise it, so common sense is often aware of the presence of Fallacy, but fails to see exactly what is wrong. Unskilled controversy is full of expressions pointing to this fact, as when the instinctively fair reasoner, puzzled by an argument which he feels to be illegitimate, but which he knows not how to refute, falls back on the epithet "specious" or "plausible," or boldly declares in some shape or other that an ounce of mother-wit is worth a ton of logic.

Of course, this has its other side. The unfair reasoner, whether instinctively so or purposely, when worsted in argument, often makes the same complaint. He too, not unfrequently, appeals to a "feeling" that his opponent is wrong, and when pressed to say exactly where the fallacy lies, he, too, can only vaguely re-assert that there is error *somewhere*, hint perhaps that some word-jugglery has been employed against him, or at least that his apparent discomfiture is due to his own want of technical skill.

In proportion to our power of localising fallacy would be the strength of our armour against plausible arguments on the one hand and against this plausible excuse on the other: for if there were simple methods of detecting error, he who refused to employ them would thereby half confess the weakness of his cause. If those who profess a thirst for truth fail to show any actual eagerness for it when the means of securing it (at any rate the preliminary means) are ready to hand, we should have a fair presumption that their thirst is not excessive.

Unfortunately the means of localising fallacy are very far from being even practically perfect. The logician has, indeed, his appropriate names for various fallacies, after they have been discovered, but he has almost no rules to help him in discovering them; and such rules as he has demand for the most part as a prior condition of their use that the argument in question shall be translated out of its everyday language into forms that are apt to rouse scorn and impatience in the modern world rather than respect or terror. There is a widespread opinion that life is too short to waste either in arranging our arguments in strict syllogistic form, or in analysing them into what Dr. Whewell called their "A,B,C, and *a,b,c,* elements," and besides, the process of arrangement and translation has so many pitfalls of its own that the popular distrust of Logic can without much difficulty make out a fair case for itself. Practically the commonest resource against fallacy is caricature, or the plan of pushing an argument to its extreme. More strictly perhaps this should be

described as the method of bringing a parallel case in which the fallacy stands naked and ashamed, as where Bentham says of a certain political argument—"It enjoins us to build no parapets to a bridge till the number of accidents has raised a universal clamour," or of another, "If a man's tenants were to come with a general encomium on the prosperity of the country, instead of a specified sum, would it be accepted?" And all controversial writing and speaking is full of examples of this device. Just as, in old times, parables and fables were widely recognised as a forcible means of conveying truth and exposing error, so now essentially the same plan is adopted, though for the most part in a shorter form. Whately's *Logic* and *Rhetoric* may be mentioned as a mine of instances, bad and good, if any illustration is needed of so common a practice, and perhaps no other method will approach this in rhetorical weight. But obviously not everyone can acquire the happy knack of hitting upon apt similes at the right moment; and besides, the line between fair and unfair caricature is always difficult to preserve. This method can hardly be considered a trusty weapon except in the hands of a few privileged persons possessing a more than common share of native acuteness. What is wanted is a means, more easily employed by all, of clearly distinguishing, in practice, any piece of faulty reasoning that occurs. When reasons are produced for a belief held, how are we to judge whether those reasons amount to valid proof, or whether and where the proof breaks down?

By inquiring, in the first place, how far the best existing classifications may be said to supply a means of answering this question we shall most easily keep in view the direction in which to look for a scheme suited to the purpose. Whately's arrangement, based chiefly upon that of Aristotle, and Mill's, following a plan of his own, may I think be taken as fairly representing the classifications that aim at being exhaustive and also at serving the purposes of Logic directly. We clearly need not here examine those which like Bacon's *Idola*, or Prof. Bain's "Fallacious Tendencies of the mind," are only intended to be indirectly of logical interest, being mainly psychological; nor need we be deterred by writers who, like De Morgan and Ueberweg, declare that, the forms of fallacy being infinite, any orderly arrangement becomes impossible. From our point of view, as will become sufficiently apparent, this possible infinitude of fallacies affects the methods of guarding and detection really no more than the infinite divisibility of a policeman's beat prevents his keeping a watch over it.

First, we must notice that both Whately and Mill, chosen as being prominent in this field, themselves admit a weak point in

their results. "It must often," says Whately, "be a matter of doubt, or rather of arbitrary choice, not only to which genus each kind of fallacy should be referred, but even to which kind to refer any one individual fallacy." And he further speaks of the utter impossibility of framing any classification which shall be completely secure from this objection. Mill's verdict runs—"We must not, however, expect to find that men's actual errors always, or even commonly, fall so unmistakably under some one of these classes as to be incapable of being referred to any other"; and further—"Almost all fallacies might in strictness be brought under our fifth class, Fallacies of Confusion. A fallacy can seldom be absolutely referred to any of the other classes."

This is obviously disappointing. If the individual fallacy cannot with any certainty be referred to its place in the system, one must confess that either the particular system is at fault, or any attempt at systematic arrangement is hopeless. Of course, it is a useful thing to possess concise and descriptive names for as many as possible of the most frequently recurring forms of error; and if by means of them economy of time and trouble may be effected in comparing a case of fallacy that occurs with others like it, so much is pure gain; but when those names stand confessed of being "not always, or even commonly" applicable with accuracy in the given cases that arise, one can hardly help wishing to seek for other names which might fulfil this purpose properly. And before declaring that the attempt is hopeless, we are bound to search for remediable defects in the existing systems.

Accordingly we find Mill confessing that his classification is founded "jointly" on two principles of division,—a plan which every logician knows must let the classes overlap. Partly, no doubt, owing to the subordinate place which the subject of Fallacies is commonly made to take in the exposition of Logic, care in following the strict rules of division seems to have been considered superfluous. The subject of Fallacies was, in Mill's view, an extra gift, to be thrown in by way of rounding off the system; and was meant, no doubt, to be treated in a spirit of gratitude rather than of criticism. Again, every writer on Fallacy seems to have felt an obligation to find a place somewhere for as many as possible of the names already in use for different kinds of errors, besides occasionally increasing the list himself. Hence there has grown up a tangle of names, overlapping and crossing each other in all directions, given at different times, for different purposes, by different people.

But the greatest difficulty is of another kind. It flows from that main source of trouble—the need for saving time. It con-

sists in the tendency of these classifications to keep alive the practice of *guessing* at the cause of the fallacy, instead of gradually eliminating possibilities of error in the successive stages of a process.[1] Instead of acknowledging that the exact seat of any given case of faulty reasoning is, in most cases, a matter for patient investigation, there has been too much yielding to the popular demand that Logic shall at once and offhand point out any fallacy that occurs. The technical names of fallacies mostly profess a complete knowledge of the *cause* of the given mistake, and though this knowledge may, of course, in some cases be attained, yet a system based upon guess-work (for this is nothing else) must lose in certainty what it gains in pace. So far as Logic has ever claimed to possess, or dreamed of possessing, such infallible insight, it deserves, no doubt, the ridicule it often gets. And in a rhetorical or controversial point of view, there is a further objection. Even where our guess is correct, the life of a fallacy by no means necessarily becomes extinct. The nature of fallacies is to be shadowy and indefinite, soft and flexible: if we attempt to seize them directly, they will often only slip away and appear again in another shape or place. Very few will die through being dragged at once into daylight: the fallacious reasoner as a rule refuses to recognise his own arguments when stript of their disguises, and if we guess the actual fault correctly, he can often rectify this with the utmost innocence, declare it never needed rectification, and by changing the fallacy still keep his erroneous conclusion. Hence, without *applying some preliminary tests*, it must often remain impossible even for the most skilled practitioner to be certain of the actual cause of a given error: and in the cases where this may be accomplished, it is by no means always possible to produce conviction of the fault. The proper answer, in most cases, to the question—"What fallacy am I committing?" must be, that it is quite impossible to tell without cross-examination; and to supply a framework for such cross-examination should be the main business of a classification aiming at practical use. As a rule, vagueness and error is not, even in the first instance, confined to one part of the process either of reasoning or of reflection on our reasonings, but rather pervades and leavens the whole. Still less tangible does it often become when we disturb it by snatching hastily: driven from one corner it takes refuge

[1] If it should be held that Mill's division (of cases where the evidence is distinctly conceived) into Inductive and Deductive Fallacies really implies the conception of successive stages of a process, there can at least be no doubt that throughout Mill's own account of the classification there is no reference to the fact, and also (what is more important) no hint given as to its capability of being employed in this manner for practical purposes.

in another, and a different part of the process is left vague on different occasions. Besides, so large a portion of all arguments met with in practice must always, through the need for saving time, be left unexpressed or at most dimly indicated, that without applying tests we have only the rudest guess-work to guide us in the search.

Of course, to find the real cause of the error is extremely important. Just as in curing a disease, so in solving a fallacy, it may often be of the highest service to know how the mischief really arose. But a surer method than guessing consists in patiently closing up, one by one, all avenues of escape for the fallacious reasoner,—in drawing a cordon round the fallacy, and so running it to earth. The whole process of reflection on a given case of reasoning may be viewed as a series of distinct steps, the correct performance of every one of which is essential. And in order to localise fallacy with any certainty, there is no resource but to take these steps in regular order and, by means of careful examination, bar out all discoverable error from each in turn.

Fallacies, it will be seen, are thus viewed as a series of possible dangers to, or attacks upon, any case of attempted proof. But this is rather the most definite type of fallacy, and we must attempt to include something more. The distinction between Fallacy and Illusion,[1] as also that between Fallacy and Sophism, should not be considered as real barriers limiting our range. A classification to be of practical value should certainly include even the most indefinite beliefs, for these are perhaps the commonest of all sources of definite error. Not only false conclusions are fallacies in this sense, but also assertions 'without foundation'—if the assertor supposes them to be secure: not only false assertions, but unmeaning ones, if they be taken for anything other than unmeaning; and not only unmeaning assertions, but indefinite ones also, so far as their indefiniteness is unsuspected by their promoter. And as for Sophism, since that only differs from Fallacy in the fact of the sophist recognising, while the fallacious reasoner does not recognise, the illegitimacy of his own reasoning, the distinction is accidental to the mode of error, and therefore need not be here dwelt upon. As regards practice, indeed, Sophism is less formidable than Fallacy proper since clever dishonesty is always a more substantial target than mere limpness of reason or mental incoherence. So far as we can succeed in guarding against fallacy, we may consider ourselves still safer against conscious trickery. And further, the classification should be valid indifferently for

[1] For which see Mr. Sully's recent work on *Illusions*, pp. 6 and 335.

purposes of Logic and of Rhetoric,—for guarding against error or for exposing it. Fallacy is thus understood as including the widest sense that can be given to the term, though we take falsely reasoned belief, or frustrated proof, as typical. In order to treat of fallacy, it is convenient to take the more definite end of the scale. Nor is there, I believe, anything in this view that can be considered contrary to custom.

Since what is wanted for correct reasoning (or valid proof) is a belief, depending on evidence, which evidence is sufficient, the process in question—the process, not of reasoning, in the sense of arriving at our beliefs, but of reflecting on our conclusions already reached—might most naturally be viewed as consisting of three stages:—the inquiries (1) Is the thesis understood? (2) Is the reason understood? (3) Is the reason sufficient? But the (complete) sufficiency of the reason to prove the thesis guarantees in itself the absence of all fallacy; and since one of the main elements of sufficiency, namely, relevancy or, more strictly speaking, *adequacy* (the other main element being, of course, material truth), demands a clear recognition of the meaning of both thesis and reason, it seems, on the whole, a better division to distinguish, in the first place, the two main needs—adequacy and material truth—of the reason given, to subdivide the shortcomings in attaining the former of these into (1) confusion, (α) in the thesis, (β) in the reason given; (2) errors in completing proof (or supplying missing premisses), and these into (α) formal, and (β) material. If the reason given is both adequate and true, the assertion in question is proved: if either of these desiderata fails, the proof breaks down. In order to the recognition of a well-founded belief, it is necessary (1) that there should be a real belief, clearly conceived and steadily held; (2) that, granting this, its grounds should also be clearly and steadily recognised as such, and (5) be true in fact; and that, granting this clear recognition, whatever further assertion may be strictly implied in giving these grounds as guarantee for the belief, should be (3) clearly recognised as necessary, and (4) materially true. Corresponding to these five needs, we get five opportunities of error, five great classes of fallacy.

A table will show more clearly their interdependence:—

Inquiry into *adequacy* of reason given for believing.	Fallacy. (*Non-sequitur*)	Confusion	(1) In thesis : (2) In reason given.
		Failure to complete the proof	(3) Formal : (4) Material.
Inquiry into *truth* of ditto.			(5) Truth of reason unduly assumed.

The classes are arranged as far as possible in the order of prior

importance: misinterpretation (or confusion) is the most radical error of all, formal fallacies are more elementary than material ones, inadequacy than untruth. We must first see whether there exists a real and steady belief, before we can see whether it is even supposed to be securely founded: and we must see whether it is supposed to have a firm foundation before we need inquire whether it really has one. The belief may, indeed, exist without our being clearly conscious of its existence, and it may even be true. Unconsciousness of the rules of evidence, though a hindrance to the acquirement of truth, does not absolutely prevent it. But one thing is entirely prevented by failure in any one of these five points, and that is, the intelligent *recognition* of our belief as having stood all possible tests of truth. There is *room for error* so long as our belief or its grounds remain unexamined. The above five inquiries, therefore, may be viewed as representing five stages in our progress towards recognising the soundness of any belief set up for trial, five successive opportunities for separate dangers to beset us in the attempt at proof. All five steps must be safely passed through before we can know that any given belief is safe from all discoverable error. Whatever error occurs must occur at one or other of these stages, and each may be tested separately from all the others. It is, of course, not unusual that more than one step is faulty in the same piece of attempted proof, but this does not interfere with our power of naming the fallacy that first appears, or with our right of ceasing to inquire further. We are not concerned with other fallacies until the step found actually faulty be corrected.

In this slight sketch it is not possible to go minutely into details. And, in fact, the first, second, and fifth classes will sufficiently explain themselves. A few remarks, however, on the third and fourth classes seem needed.

The names "formal" and "material" require some apology, but I have been unable to find any other names better suited to the purpose in hand. The distinction here intended has nothing to do with that between deductive and inductive proof: what are here called "formal" fallacies may occur in the latter kind of proof as well as in the former, and our "material" fallacies may occur in any attempt at syllogistic demonstration. The two distinct kinds of proof,—the only two kinds fundamentally distinct,—derivative (or deductive) proof, and empirical (or inductive)—have each their formal and their material sides, in the sense here intended: and it is, properly speaking, only on their formal side that the methods of Logic can give security from error. For when we have guarded against the fallacies here called formal, nothing remains but to inquire whether

our premisses (the general uniformities and individual facts, implied and asserted) are materially true; and this demands an examination of the reasons for believing them, and hence an inquiry into the adequacy and the material truth of those reasons, and so again of the reasons for these reasons, *ad infinitum*. Theoretically, of course, material truth may always be called in question, and practical utility is the umpire that decides where scepticism shall cease. But all that we are here concerned to notice is that the inquiry into the material truth either of the reason originally given for the thesis in dispute or of the further assertion implied in giving it as a reason, shifts the question at issue, and, therefore, properly brings to an end the judicial function of Logic upon that question. The analogy of a judge and a jury might almost be applied,—if care be taken not to stretch the metaphor too far; especially since, for practical purposes, we must always rely to a great extent on common sense as to matters of fact. If Logic, for instance, points out that certain evidence is adequate in support of an assertion, subject to the condition of some widely-accepted uniformity in Nature being true, it would, in many cases, be a purely mischievous waste of time to delay assurance until the grounds of this further assertion had been carefully re-examined. But, however this may be,—and it is, of course, ultimately a question of practical convenience, or rather of the never-ending struggle between the needs of faith and watchfulness,—the point important to us here is that the inquiry into material truth leads to a mere repetition of the logical methods, with always the same remainder over: and that, therefore, in discussing those methods, it is sufficient to carry them up to the point where *adequacy* of the reason given is secured.

Each of the two kinds of proof has its own formal dangers. The formal errors in derivative proof correspond most nearly to the old syllogistic fallacies (including, of course, the conjunctive and disjunctive forms) with one important difference:—since proof, and not inference, is the purpose in view, the fallacies here treated do not consist in drawing a wrong conclusion from given premisses, but in accepting insufficient premisses as guarantee for a given conclusion. Usually a conclusion (thesis) and one premiss (the reason in support of it) are given, and the fallacy lies in resting content with the simple converse, or the unlimited reciprocal, of the required further premiss; but also, sometimes, in accepting a particular proposition in place of a universal, or an incomplete instead of a complete identification.

Under formal errors in empirical proof are included all cases of overlooking the *a priori* possibilities of failure in induction,—the various ways in which the inductive methods are liable to frus-

tration. The inductive methods, of Herschel and Mill, so far as methods of proof, and not merely of discovery, may be viewed as a list (whether perfectly satisfactory or not does not concern us here) of the elementary modes in which we *do* reason from particular facts; each method having its own special dangers, or rather its special forms of the same danger, namely, that of proceeding upon insufficient analysis of the complex cases presented in experience. The "possibility of unknown antecedents" is, in fact, the one enemy to be jealously excluded, whose presence is able to vitiate all our best endeavours. In other words, the formal errors in empirical proof consist in overlooking the need for excluding alternative theories. The burden of proof cannot, in fact, be shaken off by merely claiming that some one (or all) of the five methods has been employed. It cannot be shaken off until the assertor has shown further with what precautions his experiments or observations have been made. If, for instance, the theory of spontaneous generation be supported by an experiment according to the direct method of difference, before accepting the theory as proved, we require to know what has been done to exclude 'unknown antecedents,' and if a loophole has been left open, we have reason to withhold our faith. This is, perhaps, rather an extreme case: commoner instances may be found in such matters as ascribing a headache to the lobster-salad, or, more generally, in tracing an effect to an admitted antecedent without due inquiries and precautions as to the exclusion of all others.

Leaving the mere arrangement of the matter, and glancing at the question of its practical application, it is obvious that this plan of searching (if need be) through the entire process is far longer in practice than the plan of making a happy guess. And since Fallacies have a tendency to run in well-beaten grooves, guess-work must not be entirely condemned. More than this, it may even be said that the chief use of the longer scheme is not necessarily for application in all cases that occur in the hurry and press of daily life, but rather as an ideal scheme, to be employed (as far as possible) in cases important enough to deserve the time and trouble; and for the rest, useful mainly as a discipline, as an indirect means of rendering our guesses less erratic, and above all, as supplying us with a framework on which to piece together in a connected system all the isolated logical doctrines. It is, perhaps, hardly necessary to remark that, in calling this an "ideal scheme," there is no attempt whatever at setting up a complete and infallible organon of truth. The chief point in which this scheme claims an advantage is (as already suggested) in its greater readiness to confess the difficulty which must always exist in diagnosis. The day

of quack medicines in Philosophy may fairly be considered past; everyone now recognises, consistently enough, our limitations in rendering belief secure. The most that Logic can hope to do is to bring prominently into notice the points at which there is known to be room for error, and to insist on the need for guarding these points to the best of our power. In calling this an ideal, no more is meant than that even this security is, from various causes, not always realisable in practice. It would be a waste of our opportunities of saving time, if we determined never to risk a guess. There are prevailing fashions, and individual tendencies, in fallacy as in other things. If, for instance, we know that the present fashion of some party in English politics is to rely too much on unsifted experience, or to dread the thin end of every possible wedge, or to confuse concrete and abstract questions, such knowledge may sometimes suffice to point out with very high probability the seat of some particular error. So, too, we and our friends have each our own peculiar weakness in reasoning, which may be remembered with advantage; one being over-sanguine or credulous, another over-cautious or sceptical, a third habitually neglectful of the burden of proof, a fourth almost colour-blind (so to speak) to the medium shades between pairs of opposites, and so on. When we possess a store of trustworthy observations of this kind, it would, of course, be a pity to make no use of them. The important thing is, in such cases, to remember that after all we are merely guessing, and that there is always the longer process to fall back upon if the matter in question is worth the pains. The application of Logic needs a certain amount of judicious compromise, but in all such compromise it is well to keep clearly in view the concessions made, and to regard them not as absolutely inevitable, but as a price willingly paid in certain cases (chiefly where time is an object), and prudently to be withheld in others.

ALFRED SIDGWICK.

IV.—THE RELATION OF GREEK PHILOSOPHY TO MODERN THOUGHT.

I.

ADEQUATELY to exhibit the relation of Greek philosophy to modern thought would require a volume. The object of the present discussion is merely to show in what ways that relation has been most clearly manifested, and what assistance it may afford us in solving some important problems connected with the development of metaphysical and moral speculation.

Historians often speak as if philosophy took an entirely fresh start at different epochs of its existence. One such break is variously associated with Descartes, or Bacon, or some one of their Italian predecessors. In like manner, the introduction of Christianity, coupled with the closing of the Athenian schools by Justinian, is considered, as once was the suppression of the West-Roman Cæsarate by Odoacer, to mark the beginning of a new *régime*. But there can be no more a real break in the continuity of intellectual than in the continuity of political history, beyond what sleep or inactivity may simulate in the life of the organic aggregate no less than in the life of the organic individual. In each instance the thread is taken up where it was dropped. If the rest of the world has been advancing meanwhile, new tendencies will come into play, but only by first attaching themselves to older lines of movement. Sometimes, again, what seems to be a revolution is, in truth, the revival or liberation of an earlier movement through the decay or destruction of beliefs which have hitherto checked its growth. Thus the systems of Plato and Aristotle, after carrying all before them for a brief period, were found unsuitable, from their vast comprehension and high spirituality, to the undeveloped consciousness of their age, and were replaced by popularised versions of the sceptical or naturalistic philosophies which they had endeavoured to suppress. And when these were at length left behind by the forward movement of the human mind, speculative reformers spontaneously reverted to the two great Socratic thinkers for a better solution of the problems in debate. After many abortive efforts, a teacher appeared possessing sufficient genius to fuse their principles into a seemingly coherent and comprehensive whole. By combining the Platonic and Aristotelian spiritualism with some mystical elements borrowed from Stoicism, Plotinus did for an age of intellectual decadence what his models had done in vain for an

age of intellectual growth. The relation in which he stands to Stoicism and Epicureanism reproduces the relation in which they stood to the various physical and sophistic schools of their time; but the silent experience of six centuries won for him a much more enduring success.

Neo-Platonism was the form under which Greek philosophy passed into Christian teaching; and the transition was effected with less difficulty because Christianity had already absorbed some of its most essential elements from the original system of Plato himself. Meanwhile the revival of spiritualism had given an immense impulse to the study of the classic writings whence it was drawn; and the more they were studied the more prominently did their antagonism on certain important questions come into view. Hence no sooner did the two systems between which Plotinus had established a provisional compromise come out victorious from their struggle with materialism, than they began to separate and draw off into opposing camps. The principal subject of dispute was the form under which ideas exist. The conflicting theories of Realism and Nominalism are already set forth with perfect clearness by Porphyry in his introduction to the *Organon;* and his statement of the case, as Victor Cousin has pointed out, gave the signal for a controversy forming the central interest of Scholasticism during the entire period of its duration. Now, it is a remarkable fact, and one as yet not sufficiently attended to, that a metaphysical issue first raised between the Platonists and Aristotle, and regarded, at least by the latter, as of supreme importance for philosophy, should have been totally neglected at a time when abundant documents on both sides were open to consultation, and taken up with passionate eagerness at a time when not more than one or two dialogues of Plato and two or three tracts of Aristotle continued to be read in the western world. Various explanations of this singular anomaly may be offered. It may be said, for instance, that after every moral and religious question on which the schools of Athens were divided had been closed by the authoritative ruling of Catholicism, nothing remained to quarrel over but points too remote or too obscure for the Church to interfere in their decision; and that these were accordingly seized upon as the only field where human intelligence could exercise itself with any approach to freedom. The truth, however, seems to be that to take any interest in the controversy between Realism and Nominalism, it was first necessary that European thought as a whole should rise to a level with the common standpoint of their first supporters. This revolution was effected by the general adoption of a monotheistic faith. Moreover, the Platonic ideas were something more than figments

of an imaginative dialectic. They were now beginning to appear in their true light, and as what Plato had always understood them to be—no mere abstractions from experience, but spiritual forces by which sensuous reality was to be reconstituted and reformed. The Church herself seemed something more than a collection of individuals holding common convictions and obeying a common discipline; she was, like Plato's own Republic, the visible embodiment of an archetype laid up in Heaven. And the Church's teaching seemed also to assume the independent reality of abstract ideas. Does not the Trinity involve belief in a God distinct from any of the Divine Persons taken alone? Do not the Fall, the Incarnation, and the Atonement become more intelligible if we imagine an ideal humanity sinning with the first Adam and purified by becoming united with the second Adam? Such, at least, seems to have been the dimly conceived metaphysics of St. Paul, whatever may now be the official doctrine of Rome. It was therefore in order that, during the first half of the Middle Ages, from Charlemagne to the Crusades, Realism should have been the prevailing doctrine; the more so because Plato's *Timæus*, which was studied in the schools through that entire period, furnishes its readers with a complete theory of the universe; while only the formal side of Aristotle's philosophy is represented by such of his logical treatises as were then known to Western Christendom.

Yet Realism concealed a danger to orthodoxy which was not long in making itself felt. Just as the substantiality of individuals disappeared in that of their containing species, so also did every subordinate species tend to vanish in the *summum genus* of absolute Being. Now such a conclusion was nothing less than full-blown Pantheism; and Pantheism was, in fact, the system of the first great Schoolman, John Scotus Erigena; while other Realists were only prevented from reaching the same goal by the restraint either of Christian faith or of ecclesiastical authority. But if they failed to draw the logical consequences of their premisses, it was drawn for them by others; and Abélard did not fail to twit his opponents with the formidable heresy implied in their realistic principles.[1] As yet, however, the weight of authority inclined towards Plato's side; and the persecution suffered by Abélard himself, as compared with the very mild treatment accorded to his contemporary, Gilbert de la Porrée, when each was arraigned on a charge of heresy, shows that while the Nominalism of the one was an aggravation, the Realism of the other was an extenuation, of his offence.[2]

[1] Hauréau, *Histoire de la Philosophie Scolastique*, I. 372.

[2] For Gilbert de la Porrée see Hauréau, I., chap. xviii.

So matters stood when the introduction of Aristotle's entire system into Western Europe brought about a revolution comparable to that effected two centuries later by the complete recovery of ancient literature. It was through Latin translations from the Arabic, accompanied by Arabic commentaries, that the Peripatetic philosophy was first revealed in its entirety; and even Albertus Magnus, living in the thirteenth century, seems to have derived his knowledge of the subject from these exclusively. But in 1209, a few years after the capture of Constantinople by the Crusaders, the Greek manuscripts of Aristotle were brought to Paris, and towards the middle of the century a new Latin version was made from these under the supervision of St. Thomas Aquinas.[1] The triumph of Aristotle was now, at least for a time, secured. For, while in the first period of the Middle Ages we find only a single great name, that of Abélard, among the Nominalists, against a strong array of Realists, in the second period the proportions are reversed, and Realism has only a single worthy champion, Duns Scotus, to pit against Albertus, Aquinas, and William of Ockham, each of them representing one of the principal European nations. The human intellect, hitherto confined within the narrow bounds of logic, now ranged over physics, metaphysics, psychology, and ethics; and although all these subjects were studied only at second-hand and with very limited opportunities for criticism, still the benefit received must have been immense. The priceless service of the later Schoolmen is to have appropriated and successfully upheld, against Platonism on the one hand and theological mysticism on the other, a philosophy which, however superficial, took in the whole range of natural phenomena, derived all knowledge from external observation, and set an example of admirable precision in the systematic exposition of its results. If no positive addition was made to that vast storehouse of facts and ideas, the blame does not lie with Aristotle's method, but with the forcible suppression of free mental activity by the Church, or its diversion to more profitable fields by the study of Roman jurisprudence. Even as it was, Aristotle contributed largely to the downfall of ecclesiastical authority in two ways; directly by accustoming men to use their reason, and indirectly by throwing back mysticism on its proper office—the restoration of a purely personal religion.

But before the dissolving action of Nominalism had become fully manifest, its ascendancy was once more challenged; and this time, also, the philosophical impulse came from Constantinople. Greek scholars, seeking help in the West, brought with

[1] Jourdain, *Recherches critiques sur les Traductions latines d'Aristote.*

them to Florence the complete works of Plato, and these were shortly made accessible to a wider public through the Latin translation of Ficino. Their influence seems at first to have told in favour of mysticism, for this was the contemporary tendency to which they could be most readily affiliated; and, besides, in swinging back from Aristotle's philosophy to the rival form of spiritualism, men's minds naturally reverted in the first instance to what had once linked them together—the system of Plotinus. Thus Platonism was studied through an Alexandrian medium and as the Alexandrians had looked at it, that is to say, chiefly under its theological and metaphysical aspects. As such it became the accepted philosophy of the Renaissance, and much of what we most admire in the literature —at least the English literature—of that period, is directly traceable to Platonic influence. That the *Utopia* of Sir Thomas More was inspired by the *Republic* and the *Critias* is, of course, obvious; and the great part played by the ideal theory in Spenser's *Faery Queen*, though less evident, is still sufficiently clear. As Mr. Green observes in his *History of the English People* (II. 413), "Spenser borrows, in fact, the delicate and refined forms of the Platonic philosophy to express his own moral enthusiasm. . . Justice, Temperance, Truth are no mere names to him, but real existences to which his whole nature clings with a rapturous affection." Now it deserves observation, as illustrating a great revolution in European thought, that the relation of Plato to the epic of the English Renaissance is precisely paralleled by the relation of Aristotle to the epic of mediæval Italy. Dante borrows more than his cosmography from the Stagirite. The successive circles of Hell, the spirals of Purgatory, and the spheres of Paradise, are a framework in which the characters of the poem are exhibited, not as individual actors whom we trace through a life's history, but as types of a class and representatives of a single mental quality, whether vicious or virtuous. In other words, the historical arrangement of all previous poems is abandoned in favour of a logical arrangement. For the order of contiguity in time is substituted the order of resemblance and difference in idea. How thoroughly Aristotelian, indeed, were the lines within which mediæval imagination moved is proved by the possibility of tracing them in a work utterly different from Dante's—the *Decameron* of Boccaccio. The tales constituting this collection are so arranged that each day illustrates some one special class of adventures; only, to make good Aristotle's principle that earthly affairs are not subject to invariable rules, a single departure from the prescribed subject is allowed in each decade; while during one

entire day the story-tellers are left free to choose a subject at their own discretion.

Now what distinguishes Spenser from Dante is that, while he also disposes his inventions according to an extremely artificial and abstract schematism, with him, as with Plato, abstractions acquire a separate individual existence, being, in fact, embodied as so many persons; while Dante, following Aristotle, never separates his from the concrete data of experience. And it may be noted that, in this respect at least, English literature has not deserted the philosophy which presided over its second birth. It has ever since been more prone to realise abstraction than any other literature, whether under the form of allegories, parables, or mere casual illustrations drawn from material objects. Even at this day English writers crowd their pages with dazzling metaphors which to Continental readers must have sometimes a rather barbaric effect.

Another and profounder characteristic of Plato, as distinguished from Aristotle, is his thoroughgoing opposition of reality to appearance; his distrust of sensuous perception, imagination, and opinion; his continual appeal to a hidden world of absolute truth and justice. We find this profounder principle also grasped and applied to poetical purposes in our Elizabethan literature, not only by Spenser, but by a still greater master—Shakespeare. It is by no means unlikely that Shakespeare may have looked into a translation of the *Dialogues;* at any rate, the intellectual atmosphere he breathed was so saturated with their spirit that he could easily absorb enough of it to inspire him with the theory of existence which alone gives consistency to his dramatic work from first to last. For the essence of his comedies is that they represent the ordinary world of sensible experience as a scene of bewilderment and delusion, where there is nothing fixed, nothing satisfying, nothing true; as something which, because of its very unreality, is best represented by the drama, though not without mysterious intimations of a reality behind the veil. In them we have the

> "Fallings from us, vanishings,
> Blank misgivings of a creature
> Moving about in worlds not realised;"

while in his tragedies we have the realisation of those worlds —the workings of an eternal justice which alone remains faithful to one purpose through the infinite flux of passion and of sense.

Besides the revival of Platonism, three causes had conspired to overthrow the supremacy of Aristotle. The literary Renaissance with its passion for beauty of form was alienated by the barbarous dialect of Scholasticism; the mystical theology of

Luther saw in it an ally both of ecclesiastical authority and of human reason; and the new spirit of passionate revolt against all tradition attacked the accepted philosophy in common with every other branch of the official university curriculum. Before long, however, a reaction set in. The innovators discredited themselves by an extravagance, an ignorance, a credulity, and an intolerance worse than anything in the teaching which they decried. No sooner was the Reformation organised as a positive doctrine than it fell back for support on the only model of systematic thinking at that time to be found. The Humanists were conciliated by having the original text of Aristotle placed before them, and they readily believed, what was not true, that it contained a wisdom which had eluded mediæval research. But the great scientific movement of the sixteenth century contributed, more than any other impulse, to bring about an Aristotelian reaction. After winning immortal triumphs in every branch of art and literature, the Italian intellect threw itself with equal vigour into the investigation of physical phenomena. Here Plato could give little help, whereas Aristotle supplied a methodised description of the whole field to be explored, and contributions of extraordinary value towards the understanding of some at least among its infinite details. And we may measure the renewed popularity of his system not only by the fact that Cesalpinus, the greatest naturalist of the age, professed himself its adherent, but also by the bitterness of the criticisms directed against it, and the involuntary homage offered by rival systems which were little more than meagre excerpts from the Peripatetic ontology and logic.

Of all testimonies to the restored supremacy of Aristotelianism, there is none so remarkable as that afforded by the thinker who, more than any other, has enjoyed the credit of its overthrow. To call Francis Bacon an Aristotelian will seem to most readers a paradox. Such an appellation would, however, be much nearer the truth than were the titles formerly bestowed on the author of the *Novum Organum*. The notion, indeed, that he was in any sense the father of modern science is rapidly disappearing from the creed of educated persons. Its long continuance was due to a coalition of literary men who knew nothing about physics and of physicists who knew nothing about history or philosophy. It is certain that the great discoveries made both before and during Bacon's lifetime were the starting-point of all future progress in the same direction. It is equally certain that Bacon himself had either not heard of those discoveries or that he scornfully rejected them. But it might still be contended that he divined and formulated the only method by which these and all other great additions to human know-

ledge have been made, had not the delusion been dispelled by recent investigations, more especially those of his own editors, Messrs. Ellis and Spedding. Mr. Spedding has shown that Bacon's method never was applied to physical science at all. Mr. Ellis has shown that it was incapable of application, being founded on a complete misconception of the problem to be solved. The facts could, in truth, have hardly been other than what they are. Had Bacon succeeded in laying down the lines of future investigation, it would have been a telling argument against his own implied belief that all knowledge is derived from experience. For, granting the validity of that belief, a true theory of discovery can only be reached by an induction from the observed facts of scientific practice. It would have been still more extraordinary had he furnished a clue to the labyrinth of nature without ever having explored its mazes on his own account. Even as it is, from Bacon's own point of view the contradiction remains. If ever any system was constructed *a priori* the *Instauratio Magna* was. But there is really no such thing as *a priori* speculation. Apart from observation the keenest and boldest intellect can do no more than rearrange the materials supplied by tradition, or give a higher generalisation to the principles of other philosophers. This was precisely what Bacon did. The wealth of aphoristic wisdom and ingenious illustration scattered through his writings belongs entirely to himself; but his dream of using science as an instrument for acquiring unlimited power over nature is inherited from the astrologers, alchemists, and magicians of the Middle Ages; and his philosophical system, with which alone we are here concerned, is partly a modification, partly an extension, of Aristotle's. An examination of its leading features will at once make this clear.

Bacon begins by demanding that throughout the whole range of experience new facts should be collected on the largest scale, in order to supply materials for scientific generalisation. There can be no doubt that he is here guided by the example of Aristotle, and of Aristotle alone. Such a storehouse of materials is still extant in the *History of Animals*, which evidently suggested the use of the word "History" in this sense to Bacon, and which, by the way, is immensely superior to anything that he ever attempted in the same line. The facts on which Aristotle's *Politics* is based were contained in another vast descriptive work of the same kind, now unhappily lost. Even the Stagirite's more systematic treatises comprise a multitude of observations, catalogued according to a certain order, but not reduced to scientific principles. What Bacon did was to carry out, or to bid others carry out, the plan so suggested in every department

of inquiry. But if we ask by what method he was guided in his survey of the whole field to be explored, how he came by a complete enumeration of the sciences arranged according to their logical order, the answer is still that he borrowed it from the Peripatetic encyclopædia.

One need only compare the catalogue of particular histories subjoined to the *Parasceve*,[1] with a table of Aristotle's works, to understand how closely Bacon follows in the footsteps of his predecessor. We do indeed find sundry subjects enumerated on which the older student had not touched, but they are only such as would naturally suggest themselves to a man of comprehensive intelligence, coming nearly two thousand years after his original; while they are mostly of no philosophical value whatever. Bacon's merit was to bring the distinction between the descriptive sciences and the theoretical sciences into clearer consciousness, and to give a view of the former corresponding in completeness to that already obtained of the latter.

The methodical distinction between the materials for generalisation and generalisation itself, is derived from the metaphysical distinction between Matter and Form in nature.[2] This distinction is the next great feature of Bacon's philosophy, and it is taken, still more obviously than the first, from Aristotle, the most manifest blots of the original being faithfully reproduced in the copy. The Forms of simple substances were, according to the Stagirite, their sensible qualities. The Forms of aggregates were the whole complex of their differential characteristics. And although the formal cause or idea of a thing was carefully discriminated from its efficient and final causes, it was found impossible in practice to keep the three from running into one. Again, the distinction between single concepts and the judgments created by putting two concepts together, although clearly conveyed by the logical distinction between terms and propositions was no sooner perceived than lost sight of, thanks to the unfortunate theory of essential predication. For it was thought that the import of universal propositions consisted either in stating the total concept to which a given mark belonged, or in annexing a new mark to a given concept. Hence in Aristotle's system the study of natural law means nothing but the definition and classification of natural types; and the whole universe is conceived as an arrangement of concentric spheres, each receiving its impulse from that immediately above

[1] *Works* I. 405 in Ellis & Spedding's Ed.

[2] "Historia naturalis . . . materia prima philosophiæ." *De Aug.* II. iii.

it. Precisely the same confusion of Form, Cause, and Law reigns throughout Bacon's theory of nature. We do, indeed, find mention made of axiomata or general propositions to a greater extent than in the *Organon*, but they are never clearly distinguished from Forms, nor Forms from functions.[1] And although efficient and material causes are assigned to physics, while formal and final causes are reserved for metaphysics—an apparent recognition of the wide difference between the forces which bring a thing into existence and the actual conditions of its stability,—this arrangement is a departure from the letter rather than from the spirit of Aristotle's philosophy. For the efficient causes of the *De Augmentis* answer roughly to the various kinds of motion discussed in the *Physics* and in the treatise *On Generation and Corruption*; while its Forms are, as we have seen, identified with natural causes or laws in the most general sense.

According to Bacon, the object of science is to analyse the complex of Forms making up an individual aggregate into its separate constituents, the object of art to superinduce one or more such Forms on a given material. Hence his manner of regarding them differs in one important respect from Aristotle's. The Greek naturalist was before all things a biologist. His interest lay with the distinguishing characteristics of animal species. These are easily discovered by the unassisted eye; but while they are comparatively superficial, they are also comparatively unalterable. The English experimenter, being primarily concerned with inorganic bodies, whose properties he desired to utilise for industrial purposes, was led to consider the attributes of an object as at once penetrating its inmost texture, and yet capable of being separated from it. But, like every other thinker of the age, if he escapes from the control of Aristotle it is only to fall under the dominion of another Greek master—in this instance Democritus. Bacon had a great admiration for the Atomists, and although his inveterate Peripatetic proclivities prevented him from embracing their theory as a whole, he went along with it so far as to admit the dependence of the secondary on the primary qualities of matter.

The next step was to create a method for determining the particular configuration on which any given property of matter depends. If such a problem could be solved at all, it would be by some new system of practical analysis. Bacon did not see this because he was a Schoolman, emancipated, indeed, from

[1] The "notions and conceptions" of the *Advancement of Learning* (*Works*, III. 356) is rendered by "axiomata" in the *De Augmentis* (I. 567), where in both instances the question is entirely about Forms. Cp. § 8 of Professor Fowler's Introduction to the *Novum Organum*.

ecclesiastical authority but retaining a blind faith in the power of logic. Aristotle's *Organon* had been the great storehouse of aids to verbal disputation; it should now be turned into an instrument for the more successful prosecution of physical researches. What definitions were to the one, that Forms should be to the other; therefore both could be determined by much the same process. Now Aristotle himself had emphatically declared that the concepts out of which propositions are constructed were discoverable by induction and by induction alone. With him, induction meant comparing a number of instances and abstracting the one circumstance, if any, in which they agreed. When the object is to establish a proposition inductively, he has recourse to a method of elimination, and bids us search for instances which, differing in everything else, agree in the association of two particular marks. (*Prior Analyt.* II. xxx.) In the *Topics* he goes still further and supplies us with a variety of tests for ascertaining the relation between a given predicate and a given subject. Among these Mill's Methods of Difference, Residues, and Concomitant Variations are very clearly stated.[1] But he does not call such modes of reasoning Induction. So far as he has any general name for them at all, it is Dialectic, that is Syllogism of which the premisses are not absolutely certain; and as a matter of nomenclature he seems to be right. There is undoubtedly a process by which we arrive at general conclusions from the comparison of particular instances; but this process in its purity is nothing more nor less than induction by simple enumeration. All other reasoning requires the aid of universal propositions, and is therefore, to that extent, deductive. The methods of elimination or, as they are now called, of experiment, involve at every step the assumption of general principles duly specified in that chapter of Mill's *Logic* where they are analysed. And wherever we can rise immediately from a single instance to a general law, it is because the examination of that single instance has been preceded by a chain of deductive reasoning.

The confusion of Induction properly so called and Elimination under a single name is largely due to the bad example set by Bacon. He found it stated in the *Analytics* that all concepts and general propositions are established either by syllogism or by induction; and he found some very useful rules laid down in the *Topics* not answering to what he understood by the

[1] Professor Bain after mentioning that the second book of the *Topics* "sets forth in a crude condition the principal canons of inductive logic," goes on to say that, "these statements cannot be called germs for they never germinated" (Grote's *Minor Works*, p. 14). May they not have germinated in the *Novum Organum*?

former method; he therefore summarily dubbed them with the name of Induction which they have kept ever since to the incalculable confusion of thought.

In working out his theory of logic, the point on which Bacon lays most stress is the use of negative instances. He seems to think that their application to reasoning is an original discovery of his own. But on examination no more seems to be meant by it than that, before accepting any particular theory, we should consider what other explanations of the same fact might conceivably be offered. In other words, we should follow the example already set by Aristotle and nearly every other Greek philosopher after Socrates. But this is not induction; it is reasoning down from a disjunctive proposition, generally assumed without any close scrutiny, with the help of sundry conditional propositions, until we reach our conclusion by a sort of exhaustive process. Either this, that, or the other is the explanation of something. But if it were either that or the other, so and so would follow, which is impossible; therefore it must be this. No other logic is possible in the infancy of inquiry; but one great advantage of experiment and mathematical analysis is to relieve us from the necessity of employing it.

The value of experimentation as such had, however, scarcely dawned on Bacon. His famous Prerogative Instances are in the main a guide to simple observation, supplemented rather than replaced by direct interference with the phenomena under examination, comparable to that moderate use of the rack which he would have countenanced in criminal procedure. There was perhaps a deeper meaning in Harvey's remark that Bacon wrote about nature like a Lord Chancellor than the great physiologist himself suspected. To Bacon the statesman, science was something to be largely endowed out of the public treasury in the sure hope that it would far more than repay the expenditure incurred by inventions of priceless advantage to human life. To Bacon the lawyer, nature was a person in possession of important secrets to be wrested from her by employing every artifice of the spy, the detective, the cross-examiner, and the inquisitorial judge; to Bacon the courtier, she was a sovereign whose policy might be discovered, and, if need be, controlled, by paying judicious attention to her humours and caprices. And for this very reason he would feel drawn by a secret affinity to the Aristotelian dialectic, derived as it was through Socrates and Plato from the practice of the Athenian law-courts and the debates of the Athenian assembly. No doubt the *Topics* was intended primarily for a manual of debate rather than of scientific inquiry; and the English Chancellor showed true philosophic genius in his attempt to utilise it for the latter purpose. Nevertheless the

adaptation proved a mistake. The Socratic dialectic was reserved exclusively by its great founder, and almost exclusively by his successors, for those human interests from the discussion of which it was first derived. And the discoverers, who in Bacon's own lifetime were laying the foundations of physical science, employed a method totally different from his, because they started with a totally different conception of the universe. To them it was not a living whole, a Form of Forms, but a sum of forces to be analysed, isolated and recombined, in fact or in idea, with a sublime disregard for the conditions under which they were presented to ordinary experience. That very extension of human power anticipated by Bacon came in a manner of which he had never dreamed. It was gained by studying, not the Forms to which he attached so much importance, but the modes of motion which he had relegated to a subordinate place in his classification of natural causes.[1]

It has been said that, whatever may be the value of his logic,

[1] Descartes showed a much deeper insight into the scientific conditions of industrial progress than Bacon. His words are, "On peut trouver une philosophie pratique par laquelle connoissant la force et les actions du feu, de l'eau, de l'air, des astres, des cieux, et de tous les autres corps qui nous environnent, aussi distinctement que nous connoissons les divers mestiers de nos artisans, nous les pouvrions employer en même façon à tous les usages auxquels ils sont propres, et ainsi nous rendre comme maistres et possesseurs de la Nature." *Discours de la Méthode* Sixième Partie. This passage has been recently quoted by Dr. Bridges ("Comte's Definition of Life," *Fortnightly Review* for June 1881, p. 684) to illustrate what seems a very questionable position. He says that the Copernican astronomy, by revealing the infinitude of the universe, made men despair of comprehending nature in her totality, and thus threw them back on inquiries of more directly human interest and practical applicability; particularly specifying "the lofty utilitarianism of the *Novum Organum* and of the *Discours de la Méthode*," as "one of the first concomitants" "of this intellectual revolution." There seems to be a double misconception here: for, in the first place, Bacon could hardly have been influenced by a theory which he persistently rejected; and in the next place neither Bacon nor Descartes showed a trace of the Positivist tendency to despair of attaining absolute and universal knowledge. Both of them expected to discover the inmost essences of things; and neither of them imagined that a different set of conditions might come into play outside the boundaries of the visible universe. In fact they believed themselves to be enlarging instead of restricting the field of mental vision; and it was from this very enlargement that they anticipated the most momentous practical results. It was with Locke, as we shall see hereafter, that the sceptical or agnostic movement began. In this same article Dr. Bridges repeats, probably on Comte's authority, the incredible statement that "Thales taught the Egyptian priests those two or three elementary truths as to the laws of triangles, which enabled them to tell the height of the pyramid by measuring its shadow." Comte's ignorance or carelessness in relating this story as a well-attested fact was long ago noticed with astonishment by Grote. (*Life of George Grote*, p. 204.)

Bacon recalled men from the construction of baseless theories to the study of facts. But here also he merely echoes Aristotle, who said the same thing long before him, with much greater terseness, and with the superior authority of one who teaches by example as well as by precept; while the merit of reviving Aristotle's advice when it had fallen into oblivion belongs to another Bacon, the author of the *Opus Majus*; the merit of acting on it, to the *savants* of the Renaissance, to such men as Vesalius, Cesalpinus, and Tycho Brahe.

But towards the close of the sixteenth century the time for amassing observations was past, no further progress being possible until the observations already recorded were interpreted aright. The just instinct of science perceived this; and for nearly a century after Cesalpinus no addition of any magnitude was made to what Bacon called "History," while men's conceptions of natural law were undergoing a radical transformation.[1] To choose such a time for developing the Aristotelian philosophy was peculiarly unfortunate; for that philosophy had become, both on its good and on its bad side, an obstacle to progress, by encouraging studies which were not wanted, and by fostering a spirit of opposition to the Copernican astronomy.

The mere fact that Aristotle himself had pronounced in favour of the geocentric system did not count for much. The misfortune was that he had constructed an entire physical philosophy in harmony with it; that he had linked this to his metaphysics; and that the sensible experience on whose authority he laid so much stress, seemed to testify in its favour. The consequence was that those thinkers who, without being professed Aristotelian partisans, still remained profoundly affected by the Peripatetic spirit could not see their way to accepting a theory with which all the hopes of intellectual progress were bound up. These considerations will enable us to understand the attitude of Bacon towards the new astronomy; while, conversely, his position in this respect will serve to confirm the view of his character set forth in the preceding pages. The theory, shared by him with Aristotle, that nature is throughout composed of Form and Matter reached its climax in the supposition that the great elementary bodies are massed together in a series of concentric spheres disposed according to some principle of graduation, symmetry, or contrast; and this seemed incompatible with any but a geocentric arrangement. It is true that Bacon quarrelled with the particular system maintained by Aristotle, and, under

[1] This "Stationary Interval" is noticed by Whewell (*History of the Inductive Sciences*, Bk. XVI., chapter iii., sect. 3), but without determining either its just limits or its real cause.

the guidance of Telesius, fell back on a much cruder form of cosmography; but his mind still remained dominated by the fancied necessity of conceiving the universe under the form of a stratified sphere; and those who persist in looking on him as the apostle of experience will be surprised to find that he treated the subject entirely from an *a priori* point of view. The truth is that Bacon exemplified, in his own intellectual character, every one of the fundamental fallacies which he has so picturesquely described. The unwillingness to analyse sensible appearances into their ideal elements was his Idol of the Tribe; the thirst for material utilities was his Idol of the Cave; the uncritical acceptance of Aristotle's metaphysics, his Idol of the Theatre; and the undefined notions associated with induction, his Idol of the Market.

We may consider it a fortunate circumstance that the philosophy of Form, that is to say, of description, definition, classification, and sensuous perception, as distinguished from mathematical analysis and deductive reasoning, was associated with a demonstrably false cosmology, as it thus became much more thoroughly discredited than would otherwise have been possible. At this juncture the first to perceive and point out how profoundly an acceptance of the Copernican theory must affect men's beliefs about nature and the whole universe, was Giordano Bruno; and this alone would entitle him to a great place in the history of philosophy. The conception of a single finite world surrounded by a series of eternal and unchangeable crystal spheres must, he said, be exchanged for the conception of infinite worlds dispersed through illimitable space. Once grant that the earth has a double movement round its own axis and round the sun, and Aristotle's whole system of finite existence collapses at once, leaving the ground clear for an entirely different order of ideas.[1] But in this respect whatever was established by the new science had already been divined by a still older philosophy than Aristotle's, as Bruno himself gladly acknowledged,[2] and the immediate effect of his reasoning was to revive the Atomic theory. The assumption of infinite space, formerly considered an insuperable objection to that theory, now became one of its chief recommendations; the arguments of Lucretius regained their full force, while his fallacies were let drop; Atomism seemed not only possible but necessary; and the materialism once associated with it was equally revived. But

[1] Compreso che sarà il moto di quest' astro mondano in cui siamo . . . . s'aprirà la porta de l'intelligenza de li principj veri di cose naturali. *De l'Infinito Universo e Mondi*, p. 51, Wagner's Ed.

[2] "Sono amputate radici che germogliano, son cose antiche che rivegnono." *Ib.*, p. 82.

Aristotelianism, as we have seen, was not alone in the field, and on the first symptoms of a successful revolt its old rival stood in readiness to seize the vacant throne. The question was how far its claim would be supported, and how far disputed by the new invaders. It might be supposed that the older forms of Greek philosophy, thus restored to light after an eclipse of more than a thousand years, would be not less hostile to the poetic Platonism than to the scientific Aristotelianism of the Renaissance. Such, however, was not the case; and we have to show how an alliance was established between these apparently opposite lines of thought, eventually giving birth to the highest speculation of the following century.

Bruno himself acted as a mediator between the two philosophies. His sympathies with Platonism were strongly pronounced, he looked with admiration on its mediæval supporters, especially David of Dinan; and regretted the time when Oxford was a focus of realistic teaching, instead of being what he found her, devoted to the pedantic humanism of the Renaissance.[1] He fully accepted the pantheistic conclusions towards which Platonism always tended; but in proclaiming an absolute principle whence all specific differences are evolved, he is careful to show that, while it is neither Form nor Matter in the ordinary sense, it may be called Matter in the more refined signification attached to that term by Plotinus and indeed by Aristotle himself. There is a common substance underlying all abstract essences, just as there is a common substance left behind when the sensible qualities of different bodies are stripped off; and both are at bottom the same. Thus Monism became the banner round which the older forms of Greek speculation rallied in their assault on Aristotle's philosophy, though what it meant was as yet very imperfectly understood.

Meanwhile a new and powerful agency was about to interpose with decisive effect in the doubtful struggle. This was the study of mathematics. Revived by the Arabians and never wholly neglected during the Middle Ages, it had profited by the general movement of the Renaissance, and was finally applied to the cosmical problem by Galileo. In this connexion two points of profound philosophical interest must be noted. The first is that, even in its fall, the Aristotelian influence survived, to some extent, both for good and for evil. To Aristotle belongs the merit of having been the first to base astronomy on physics. He maintains the earth's immobility on experimental no less than on speculative grounds. A stone thrown straight up in

[1] *Principio Causa et Uno*, p. 225. For David of Dinan, whose opinions are known only through the reports of Albertus and Aquinas, see Hauréau, II., iv.

the air returns to its starting point instead of falling to the west of it; and the absence of stellar parallax seems to show that there is no change in our position relatively to the heavenly bodies. After satisfying himself on empirical considerations that the popular astronomy is true, he proceeds to show that it must be true by considerations on the nature of matter and motion, which, although mistaken, are conceived in a genuinely scientific spirit. Now Galileo saw that, to establish the Copernican system, he must first grapple with the Peripatetic metaphysics, and replace them by a new dynamical theory. This, which he could hardly have effected by the ordinary mathematical methods, he did by borrowing the analytical method of Atomism and applying it to the measurement of motion. The law of falling bodies was ascertained by resolving their descent into a series of moments, and determining its rate of velocity at successive intervals; and curvilinear motions were similarly resolved into the combination of an impulsive with an accelerating force, a method diametrically opposed to that of Bacon who would not even accept the rough analysis of the apparent celestial motions proposed by Greek astronomers.

It seems strange that Galileo, having gone so far, did not go a step further and perceive that the planetary orbits, being curvilinear, must result from the combination of a centripetal with a tangential force. But the truth is that he never seems to have grasped his own law of inertia in its full generality. He understood that the planets could not have been set in motion without a rectilinear impulse; but his idea was that it continued only so long as was necessary, in order to give them their present velocity instead of acting on them for ever as a tangential force. The explanation of this strange inconsequence must be sought in a survival of Aristotelian conceptions, in the persistent belief that rectilinear motion was necessarily limited and temporary, while circular movement was natural, perfect and eternal.[1] Now such conceptions as nature, perfection, and eternity always rebel against an analysis of the phenomena wherein they are supposed to reside. The same prejudice will explain why Galileo should have so persistently ignored Kepler's Laws, for we can hardly imagine that they were not brought under his notice.

The philosophical affinities of the new science were not exhausted by the atomistic analysis of Democritus and the regulative method of Aristotle. Platonism could hardly fail to

[1] Galileo's words are:—"Il moto circulare è naturale del tutto e delle parti mentre sono in ottima disposizione." *Dialoghi sui Massimi Sistemi. Opere*, Vol I. p. 265; see also p. 38.

benefit by the great impulse given to mathematical studies in the latter half of the sixteenth century. The passionate love of its founder for geometry must have recommended him as much to the most advanced minds of the period as his religious mysticism had recommended him to the theologians of the earlier Renaissance. And the increasing ascendancy of the heliocentric astronomy with its splendid defiance of sense and opinion was indirectly a triumph for the philosophy which, more than any other, had asserted the claims of pure reason against both. We see this distinctly in Galileo. In express adhesion to Platonism, he throws his teaching into a conversational form, endeavouring to extract the truth from his opponents rather than convey it into their minds from without; and the theory of reminiscence as the source of demonstrative knowledge seems to meet with his approval.[1] He is always ready with proofs drawn from observation and experiment; but nothing can be more in Plato's spirit, nothing more unlike Aristotle and Bacon, than his encomium on the sublime genius of Aristarchus and Copernicus for having maintained a rational hypothesis against what seemed to be the evidence of their senses.[2] And he elsewhere observes how much less would have been the glory of Copernicus had he known the experimental verification of his theory.[3]

The Platonic influence told even more efficaciously on Galileo's still greater contemporary Kepler. With him as with the author of the *Republic*, mysticism took the direction of seeking everywhere for evidence of mathematical proportions. With what brilliant success the search was attended, it is needless to relate. What interests us here is the fact vouched for by Arago, that the German astronomer was guided by an idea of Plato's, that the world must have been created on geometrical principles.[4] Had Bacon known anything about the work on which his adventurous contemporary was engaged, we may be sure that it would have afforded him another illustration for his Idôla, the only difficulty being whether it should be referred to the illusions of the Tribe, the Den, or the Theatre.

Meanwhile Atomism continued to exercise a powerful influ-

[1] *Dialoghi*, p. 211.

[2] "Non posso trovar termine all' ammirazione mia come abbia possuto in Aristarco e nel Copernico far la ragione tanta violenza al senso che contro a questo ella si sia fatta padrona della loro credulità." *Dialoghi*, p. 358.

[3] *Ib.*, p. 370.

[4] "Kepler était persuadé de l'existence de ces lois en suivant cette pensée de Platon: que Dieu, en créant le monde, avait dû faire de la géometrie." Arago, *Œuvres* III., 212.

ence on the method even more than on the doctrines of science. The analytical mode of treatment, applied by Galileo to dynamics, was applied, with equal success, by other mathematicians, to the study of discrete and continuous quantity. It is to the division of numbers and figures into infinitesimal parts—a direct contravention of Aristotle's teaching,—that we owe logarithms, algebraic geometry, and the differential calculus. Thus was established a connexion between spiritualism and materialism, the philosophy of Plato and the philosophy of Democritus. Out of these elements together with what still survived of Aristotelianism was constructed the system of Descartes.

To understand Descartes aright we must provisionally disregard the account given in his work on Method of the process by which he arrived at a new theory of the world; for, in truth, there was nothing new about it except the proportion in which fragments taken from older systems were selected and recombined. As we have already noticed, there is no such thing as spinning philosophies out of one's own head; and in Descartes' case even the belief that he was so doing came to him from Plato; for along with Aristotle's dogmatic errors his sound teaching with regard to the derivation of knowledge had fallen into oblivion. The initial doubt of the *Discourse on Method* and the *Meditations* is also Platonic; only it is manifested under an individual and subjective, instead of a universal and objective form. But to find the real starting-point of Descartes' inquiries we must look for it in his mathematical studies. A geometrician naturally conceives the visible world under the aspect of figured extension; and if he thinks the figures away, nothing will remain but extension as the ultimate material out of which all determinate bodies are shaped. Such was the result reached by Plato in his *Timæus*. He identified matter with space, viewing this as the receptacle for his eternal and self-existent Ideas, or rather the plastic medium on which their images are impressed. The simplest spatial elements are triangles; accordingly it is with these that he constructs his solid bodies. The theory of triangular elements was probably suggested by Atomism; it is, in fact, a compromise between the purely mathematical and the materialistic methods. Like all Plato's fancies, this theory of matter was attacked with such convincing arguments by Aristotle that, so long as his physics remained in the ascendant, it did not find a single supporter. Even now, at the moment of his fall, it might have failed to attract attention had not the conditions under which it first arose been almost exactly repeated. Geometrical demonstration had again become the type of all reasoning; there was again a

sceptical spirit abroad forcing men to fall back on the most elementary and universal conceptions; an atomistic materialism again threatened to claim at least the whole field of physical inquiry for its own. That Descartes followed the *Timæus* in identifying matter with extension cannot be doubted; especially when we see that he adopts Plato's analysis of body into elementary triangles; but the theory agreed so well with his intellectual predispositions that he may easily have imagined it to be a necessary deduction from his own *a priori* ideas. Moreover, after the first two steps, he parts company with Plato, and gives himself up, so far as his rejection of a vacuum will permit, to the mechanical physics of Democritus. Much praise has recently been bestowed on his attempt to interpret all physical phenomena in terms of matter and motion, and to deduce them from the unaided operation of natural causes; but this is no more than had been done by the early Greek thinkers, from whom, we may observe, his hypothesis of an initial vortex was also derived. His cosmogony is better than theirs, only in so far as it is adapted to scientific discoveries in astronomy and physiology not made by Descartes himself; for where his conjectures go beyond these they are entirely at fault.

Descartes' theory of the universe included, however, something more than extension (or matter) and motion. If we ask whence this something more came, our philosopher will answer that it was obtained by looking into himself. It was, in reality, obtained by looking into Aristotle. To understand this, we must once more turn to the *Timæus*. Plato made up his universe from space and Ideas. But the Ideas were too vague or too unintelligible for scientific purposes. Even mediæval Realists were content to replace them by Aristotle's much clearer doctrine of Forms. On the other hand, Aristotle's First Matter was anything but a satisfactory conception. It was a mere abstraction; the unknowable residuum left behind when bodies were stripped, in imagination, of all their sensible and cogitable qualities. In other words, there was no matter actually existing without form; whereas form was never so truly itself, never so absolutely existent, as when completely separated from matter: it then became simple self-consciousness, as in God, or the reasonable part of the human soul. The revolution wrought by substituting space for Aristotle's First Matter will now become apparent. Corporeal substance could at once be conceived as existing without the co-operation of Form; and at the same stroke, Form, liberated from its material bonds, sprang back into the subjective sphere to live henceforward only as pure self-conscious thought.

This absolute separation of Form and Matter, under their new names of Thought and Extension, once grasped, various principles of Cartesianism will follow from it by logical necessity. First comes the exclusion of final causes from philosophy, or rather from nature. There was not, as with Epicurus, any anti-theological feeling concerned in their rejection. With Aristotle, against whom Descartes is always protesting, the final cause was not a mark of designing intelligence imposed on matter from without; it was only a particular aspect of Form, the realisation of what Matter was always striving after by virtue of its inherent potentiality. When Form was conceived only as pure thought there could be no question of such a process; the most highly organised bodies being only modes of figured extension. The revival of Atomism had, no doubt, a great deal to do with this result. Aristotle had himself shown with masterly clearness the difference between his view of nature and that taken by Democritus; thus indicating beforehand the direction in which an alternative to his own teaching might be sought; and Bacon had, in fact, already referred with approval to the example set by Democritus in dealing with teleological inquiries. Nevertheless Bacon's own attitude towards final causes differs essentially from Descartes'. The French mathematician, had he spoken his whole mind, would probably have denied their existence altogether. The English reformer fully admits their reality, as, with his Aristotelian theory of Forms, he could hardly avoid doing; and we find that he actually associates the study of final with that of formal causes, assigning both to metaphysics as its peculiar province. This being so, his comparative neglect of the former is most easily explained by the famous comparison of teleological inquiries to vestal virgins, dedicated to the service of God and bearing no offspring; for Mr. Ellis has made it perfectly clear that the barrenness alluded to is not scientific but industrial. Our knowledge is extended when we trace the workings of a divine purpose in nature; but it is not a kind of knowledge which bears fruit in useful mechanical inventions.[1] Bacon probably felt that men would not be very forward to improve on nature if they believed in the perfection of her works and in their beneficent adaptation to our wants. The teleological spirit was as strong with him as with Aristotle, but it took a different direction. Instead of studying the adaptation of means to ends where it already existed, he wished men to create it for themselves. But the utilitarian tendency, which predominated with Bacon, was quite exceptional with Descartes. Speaking generally, he desired

[1] *De Aug.* III. v. *Works* I. 571.

knowledge for its own sake, not as an instrument for the gratification of other wants; and this intellectual disinterestedness was perhaps another aspect of the severance effected between thought and matter.

The celebrated Cartesian paradox that animals are unconscious automata is another consequence of the same principle. In Aristotle's philosophy, the doctrine of potentiality developing itself into act through a series of ascending manifestations, supplied a link connecting the highest rational with the lowest vegetal life. The identification of Form with pure thought put an end to the conception of any such intermediate gradations. Brutes must either have a mind like ours or none at all. The former alternative was not even taken into consideration; probably, among other reasons, because it was not easily reconcilable with Christianity; so that nothing remained but to deny sensibility where thought was believed not to exist.

Finally, in man himself thought is not distinguished from feeling; it is, in fact, the essence of mind, just as extension is the essence of body; and all spiritual phenomena are modes of thought in the same sense that all physical phenomena are modes of space. It was then rather a happy chance than genuine physiological insight which led Descartes to make brain the organ of feeling no less than of intellection; a view, as Professor Huxley has observed, much in advance of that held by Bichat a hundred and fifty years later. For whoever deduced all the mental manifestations from a common essence was bound in consistency to locate them in the same bodily organ; what the metaphysician had joined the physiologist could not possibly put asunder.

We are now in a position to understand the full force of Descartes' *Cogito ergo sum.* It expresses the substantiality of self-conscious Form, the equal claim of thought with extension to be recognised as an element of the universe. This recognition of self-consciousness as the surest reality was, indeed, far from being new. The Greek sceptics had never gone to the length of doubting their own personal existence. On the contrary, they professed a sort of subjective idealism. Refusing to go beyond their own consciousness, they found in its undisturbed self-possession the only absolute satisfaction that life could afford. But knowledge and reality had become so intimately associated with something independent of mind, and mind itself with a mere reflection of reality, that the denial of an external world seemed to the vulgar a denial of existence itself. And although Aristotle had found the highest, if not the sole absolute, actuality in self-thinking thought, he projected it to such a distance from human personality that its bearing on

the sceptical controversy had passed unperceived. Descartes began his demonstration at the point where all the ancient systems had converged, but failed to discover in what direction the conditions of the problem required that they should be prolonged. No mistake can be greater than to regard him as the precursor of German philosophy. The latter originated quite independently of his teaching, though not perhaps of his example, in the combination of a much profounder scepticism with a much wider knowledge of dogmatic metaphysics. His method is the very reverse of true idealism. The *Cogito ergo sum* is not a taking up of existence into thought, but rather a conversion of thought into one particular type of existence. Now, as we have seen, all other existence was conceived as extension, and however carefully thought might be distinguished from this as absolutely indivisible, it was speedily reduced to the same general pattern of inclusion, limitation, and expansion. Whereas Kant, Fichte, and Hegel afterwards dwelt on the form of thought, Descartes attended only to its content or to that in which it was contained. In other words, he began by considering not *how* he thought but *what* he thought and *whence* it came—his ideas and their supposed derivation from a higher sphere. Here again the Platonic tendency is apparent. Having rejected the later Schoolmen, instead of making an advance on their teaching, he fell back on the realistic fancies of the earlier Schoolmen, especially St. Anselm. The mediæval doctor had inferred the existence of a supreme being *(quo nihil majus cogitari potest)* from the idea of such a being, through a quantitative comparison of the two, than which nothing more frankly materialistic can be conceived. Descartes, following on the same track, seeks, with still blinder confusion, to infer existence from the idea of perfection, just as the properties of a triangle are inferred from its definition, or again by assuming that the dynamical equivalence of a mechanical effect to its cause must obtain in a world where spatial relations and therefore measurement are presumably unknown. Such fallacies were impossible so long as Aristotle's logic continued to be carefully studied, and they gradually disappeared with its revival. Meanwhile the cat was away and the mice used their opportunity.

That the absolute disjunction of thought from matter involved the impossibility of their interaction was a consequence not drawn by Descartes himself but by his immediate followers. Here also Greek philosophy played its part in hastening the development of modern ideas. The fall of Aristotle had incidentally the effect of reviving not only the systems which preceded, but also those which followed his. Chief among

these were Stoicism and Epicureanism. Differing widely in most other respects, they agreed in teaching that body is acted on by body alone. The Cartesians accepted this principle to the fullest extent so far as human perceptions and volitions were concerned; and to a great extent in dealing with the problems of physical science. But instead of arguing from the laws of mechanical causation to the materiality of mind, they argued from its immateriality to the total absence of communication between consciousness and motion. There was, however, one thinker of that age who went all lengths with the later Greek materialists. This was Thomas Hobbes. But the influence of ancient ideas on his theories and on those of his successors, down to the time when it becomes indistinguishably mingled with other elements, must be reserved for a second and concluding paper.

ALFRED W. BENN.

V.—NOTES AND DISCUSSIONS.

THE PSYCHOLOGY OF MUSIC.

MR. SULLY, in his very cordial and generous review of *The Power of Sound* in MIND XXII., put forward certain objections in so clear and compact a form as to invite reply: and though I can scarcely hope here to make any positive addition to my side of the case, or to be more convincing in a brief Note than in a long book, there may be some advantage in embracing the views attacked in a succinct statement, and pointing out where and how (as it appears to me) the attack leaves the gist and strength of my arguments untouched.

Mr. Sully's main difference from me lies in his refusing to recognise the unique and independent character which I attribute to what I have called 'the musical faculty,' and the consequent impossibility of obtaining ultimate or even approximate explanations of its actions and verdicts, and of the more distinctive sort of musical impressions; 'the hopelessness' (to quote my preface) 'of penetrating Music in detail, and of obtaining, whether in objective facts of structure or in fancied analogies and interpretations, any standpoint external to the actual inward impression, from which to judge it,' from which to measure and account for its presentation in any particular case of a characteristic pleasure-giving quality. The faculty to which I refer the perception of this quality Mr. Sully regards as an "unnecessary *deus ex machinâ*," brought in to cut the knot of an æsthetic problem admittedly complex and difficult, but likely (he thinks) to yield, without any such hypothesis, to the further progress of psychological investigation.

Now I must observe, to begin with, that there is a sense in which, and a point up to which, the 'faculty' and its uniqueness and independence would, I can hardly doubt, be admitted by Mr Sully; and that for an immense amount of the various positions and arguments connected with it in my book (*e.g.*, in respect of the relations of Music to the other arts, and of its popular possibilities), that sense would be amply sufficient. Quite apart from abstruse psychological problems, and simply taking 'musical faculty' as I have defined it, to denote *the ability to construe and enjoy a number of successive tones as a unity or single and recognisable bit of melodic form*, it is merely a name for a particular power which two persons, alike in all other respects of taste and temperament, may differ by the whole extent of possessing in perfection and not possessing at all. And in the broadest and most obvious of all musical facts, the impossibility of connecting the possession of this faculty with any other particular characteristics, moral, intellectual, or even artistic, a uniqueness and independence of a very remarkable kind is surely established. For this remarkable fact, which belongs not to scientific research but to the most ordinary observation, I find a basis (and an explanation, so far at any rate as

things are explained by being referred to something more ultimate and fundamental than themselves) in that more precise view of the uniqueness and independence of the musical faculty which results from a careful examination of the exact work it performs, of the characteristics of the special 'forms' with which it deals. Each of these forms consist of a particular set of accurate *time*-measurements fused into combination with a particular set of accurate *pitch*-measurements, of which latter the ear *alone among the senses* can take cognisance. Here again I do not understand Mr. Sully to differ from me. In the sense and in the degree in which these proportions of melodic form differ essentially from all visual and tactual proportions (for the proof how complete the difference is I must refer to my 7th and 8th chapters), in that sense and in that degree the faculty which takes cognisance of them has a unique and independent character. There need be no more difficulty in admitting so much than in admitting that the *rationale* of tone-relationship propounded by Helmholtz finds no parallel in connexion with the eye or the other sense-organs.

But now we come to the point of parting. Admitting (as I imagine he would) the uniqueness and independence up to the point indicated, Mr. Sully would still refer the characteristic pleasure of melody to discovered or discoverable laws and conditions lying outside of the particular operations in which the faculty follows and surveys the proportions presented to it. To him the uniqueness and independence of the faculty are not of so fundamental a sort, but that the most characteristic and individual effects of its exercise may be shown to have their root and essence in something more general than itself, in regions of idea and emotion external to that exercise, and which that exercise is a mere means of presenting or representing; the various actions of the faculty, as brought to bear on the various objects presented to it, being in fact but the turnings on of so many taps to these various reservoirs, where the act of turning is simply a *means*, and contributes no essential and independent ingredient to the æsthetic *result*.

Now, in respect of their *general influence* on Music, I have attached very great importance to those external regions of idea and emotion on which Mr. Sully dwells: but I am unable to connect them as he does with what I have called the *most characteristic and individual effects* of Music; and I proceed now briefly to develop what I mean by these italicised phrases. For it is just in this distinction between the *general* and the *individual* qualities of Music that the kernel of the difference between Mr. Sully and myself lies: in this distinction also lies the key of my whole argument: and I have therefore no resource but to try to suggest in a few pages what it needed as many chapters properly to elucidate.

I have urged again and again (especially in my 5th and 10th chapters) that the central fact and problem of Music lies in the *shortness* of the melodic forms in which the maximum or minimum of beauty may appear; in other words, in the extraordinary difference of pleasure-

giving quality which, to any given person at any given time, may be presented by two bits of form each comprised within the narrowest limits. Till this fact is faced, it is worse than useless to go on and imagine we are getting nearer to the root of the matter by consideration either of the sensuous effects of mere sonorous impression on the nervous system, or of the artistic aspects of large compositions, such as their wide variety, happy contrasts, finely balanced parts, and so on.[1] And the fact, in itself so startling, has at any rate the advantage of giving us extremely definite touch-stones by which to try the various explanations of melodic impressiveness which have been offered. If any proposed explanation fails hopelessly when confronted with this central fact; if its terms are found to apply equally to two forms which differ by the whole extent of giving consummate pleasure and giving no pleasure at all; it cannot be in any way what it professes to be, *viz.*, an explanation of the pleasure.

Of such professed explanations three stand out pre-eminent:—(1) that of discoverable points of structure, whether in matter of order and symmetry or of freedom and contrast, which may be connected with recognised general laws; (2) that of suggestion of physical movement or of physical impulse; (3) that of suggestion of the cadences of emotional speech. I must be satisfied here with the briefest reference to the arguments and examples by which I prove (as I conceive) the utter inadequacy of all of them.

First, as regards order and discoverable principles of adjustment, there are of course certain conditions of orderly structure which must be observed under pain of producing incoherent gibberish; but in Music these are so wide as to cover similarly the very cases whose felt difference is the thing to be accounted for. No induction of points of structure will yield us any law or laws, external to the single unanalysable impression in each case, which shall serve to separate successions of tones which give pleasure from others which give none. In my 9th chapter I have shown how little the element of order displayed in the *material* of Music, in tone-relationships and scales and so on, will account for degrees of beauty in melodic 'free forms'; and in my 8th chapter I have given instances of pairs of such forms, good and bad, in not one of which 'is a single technical point presented which could be for a moment mentioned as differentiating the good from the bad, or forming the slightest basis for an induction on the subject. Nor are the words *good* and *bad* here meant to refer to any

[1] It may save confusion to point out that in discussing the characteristics of these aspects of musical timbre and of large structure, and their respective relations to the short individual and closely organic combinations in which I find the fundamental fact of the musical art, I have frequently called the former *general* as compared with the latter; but that the general, opposed to the individual, characters discussed in this Note are those found in the *short combinations themselves*, and are such as, translated into the domain of vision, *e.g.* of faces, would amount to the possession of human features and expression, as distinct from the possession of beauty or special pleasure-giving quality.

acknowledged classification. Any individual, whatever his taste, who among the tunes he knows discriminates those which give him pleasure from those which do not, will find it entirely hopeless to form any generalisation of structural features which are present in the former and absent in the latter'. On this point Mr. Sully says: "The element of order in one of those vulgar and wearisome tunes which Mr. Gurney rightly despises after all counts for something, as might at once be seen by contrasting it with an unordered sequence of notes". Of course it counts for something, in the sense that it is a condition of the notes being comprehensible, construable as a unity; but being found in forms which are either neutral or negative as regards pleasure-giving quality, I fail to see how it can count for anything whatever as a distinction between the pleasurable and the non-pleasurable.

So much for *orderliness* of structure: as regards *freedom* and *contrast*, I must refer for my own views to my 10th chapter, §§ 8 and 9, but must devote some words here to Mr. Sully's criticism. Among the conditions of the "distinguishing beauty" of "admittedly beautiful melody," he says that "something may be set down to discoverable elements of form, as that very freedom which Mr. Gurney appears to look on as something inexplicable. The charm of a good deal of the best music is due, and is consciously referred, to some striking departure from familiar directions, which however is at the same time not otherwise disagreeable. It is curious, by the by, that in an art which owes so much to a perception of individual freshness, Mr. Gurney nowhere assigns any æsthetic value to the humble quality of novelty." In saying that I assign no æsthetic value to novelty, Mr. Sully can hardly mean that I have not dwelt sufficiently on individuality or novelty as a *characteristic* of fine musical motive, that being a point which I have very specially emphasised.[1] All that he can mean is that I do not regard the freedom and novelty felt in such motives to be properly an *explanation* of their effect. I certainly do not; it is part of the effect to be explained, or as I think *not* to be explained. It is a quality which can be perceived and judged of *only from within* the action of the musical faculty in following and surveying the particular set of proportions. Precisely what has been said in reference to the pleasure-giving quality in general applies to this particular sub-quality. No look of notes on music-paper, no analysis of structure, no computation of numerical relations, will establish any sort of condition or set of conditions applicable to combinations which present freedom and novelty, and not to others which

[1] To quote two instances out of many—'The forms, when they occur, and so far as they are impressive, are each new and unique things, not like new expressions or postures, or alterations and reminiscences, of known things: each fresh melodic presentation which is profoundly felt is felt as till then wholly unknown'. 'The primary requisite, both in simple and elaborate musical work, is that it shall contain motives of individuality as well as beauty; for of Music more truly than of anything else may we say with Bacon "there is no excellent Beauty that hath not some strangenesse in the proportion".'

present triteness and tameness of movement. If in a sense it is legitimate to say that a motive is beautiful *because* it is free and novel, we then immediately ask, Why do we call it free and novel? and the only answer is that the musical faculty finds it so. When Mr. Sully goes on to speak of beauty as "guaranteed when the degree of agreeable divergence from the common run of compositions reaches a certain height, provided always that it is in itself a worthy and sufficiently complex result," the words scarcely look as if he were keeping steadily before his imagination the typical case to the test of which I must insist on bringing, in the first instance, every explanation of melodic beauty, the case of perfectly short and simple forms. Where and what is the "agreeable divergence" or the "striking departure from familiar directions" in *Dove Sono*, or in Schubert's *Forelle*, with its perfectly naive and obvious strains, such as a child might pick up in a moment, and its simple alternations of tonic and dominant harmonies,—a tune of absolute commonness, were it not that the musical faculty pronounces it of extraordinary rarity?

In respect of structure, then, of discoverable principles of order or of freedom under conditions of order, we do not get an explanation even in that most limited sense of inductive laws shown by observation to embrace and coincide with the pleasure-giving cases; much less a true explanation of their peculiar pleasure-giving quality. Next as to physical movement. Mr. Sully says: "I do not see that Mr. Gurney's idea derives much support from the contention that the ideal motion of music is something *sui generis*, for surely there is some analogy between the form-yielding motion of music and the form-yielding movement of an object in space". I have devoted much space to an examination of the analogy of musical movement both to bodily movement and impulse and to external movement in space, and of all that it involves. What it does *not* involve is, most clearly, the solution of our central problem—why, namely, of two brief combinations of notes which are exactly on a par in respect of this analogy, one gives the maximum of pleasure and the other none at all. In the present instance I need not dwell further on this fact, as it is not as specially bearing on that central problem that the topic is introduced by Mr. Sully; but its bearing on the uniqueness of the musical faculty cannot be altogether passed over. I have, in my 8th chapter, attempted to show how little the movement of an object in space can be truly called 'form-yielding,' in comparison with melodic movement. I can quote but a single fragment. 'The progressive form, the Ideal Motion, of which each step is necessary to the whole—which is organic by dint of the relation of each component part to others, some of them separated from it by a very appreciable interval of time and, it may be, by a large number of intervening units of tone—is wholly due, as we have seen, to the fusion with *rhythm* of the *pitch*-element in which tone-relationship is the all-important feature. This is the sort of form, unchangeable in each case, along which we pass in glad compulsion. No similar necessity, no true organism, could ever be discerned in the sequence of movements of

the Professors' (Professors Perry and Ayrton's) ball, however graceful and various. The eye might have its negative requirements, and resent irregular angularities of direction and violently sudden changes of pace; but the positive faculty of linking a long series of the swiftly vanishing impressions into a unity, that faculty which the unique sense of tone-relationship alone makes possible in the case of the ear, has no possible analogue in the case of vision, in the absence of any similar means of correlating the elements of a visual series'. This being so, I do not see how any one can deny the faculty to be *sui generis*, unless he is prepared to contend that other faculties than the musical, or other senses than the auditory, can take cognisance of pitch-relations. The musical faculty is at any rate *sui generis* to the extent of apprehending and alone apprehending this sort of motion; and Mr. Sully seems here to be implicitly denying it that amount of uniqueness and independence which at the beginning of this paper I credited him with accepting, and which seems necessarily involved in the simple fact that A picks up and remembers a tune which to B is a mere fortuitous succession of sounds. The same remark applies to his next sentence: "Nor do I think that the idea of a unique faculty is greatly aided by the supposition of a special cogency in musical sequence, which I suspect is very much a matter of custom general or special (where the melody has become familiar), and depends on the fact, too lightly touched on by Mr. Gurney,[1] that melody is essentially a response to a continually renewed attitude of expectant attention". I should find here, no doubt, a more particular point of difference if Mr. Sully means that the cogency of a fine motive may not be felt quite as much on the first as on the twentieth hearing; for by *cogency* I simply mean the sense that alteration either of notes or rhythm would destroy the individual organism. But so far as this is accepted, it connects itself with a sort of uniqueness in the apprehending faculty which I should have thought indisputable, whatever view might be taken on that further question of the influence of external references which I have regarded as the chief one in dispute between Mr. Sully and myself.

To return now to that question, the remaining region of external reference which awaits discussion is that of Speech. Here again, as in the case of physical movement, I have carefully dwelt on the *general* influence of Speech on Music. To quote only a few sentences, I say that though 'every argument based either on structure or feeling confutes the idea of special relationships between the actual progressions of sound in the two cases,' yet 'the *general* bearing of speech on melody is none the less important; to it is due the vivid effect, which a fine melody produces, of being *something said*—a real *utter-*

[1] It would be absurd to complain of a critic, especially so candid and conscientious a critic as Mr Sully, for not recalling every sentence in a long book. But as a matter of fact I have more than once emphasised this particular point, and have included it (p. 175) in my list of the seven chief general characteristics of melody.

ance of transcendent significance. So prominent is this characteristic, that the impulse to project some sort of personality behind melodic strains seems absolutely irresistible. . . . The fact that I seem to myself to use that word' *(utterance)* 'in a literal and not a metaphysical sense in respect of melody, is an instinct which I cannot get behind, and which can only be entirely realised by those who share it. A splendid melodic phrase seems continually not like an object of sense, but like an affirmation; not so much prompting admiring ejaculation as compelling passionate assent. The delusion, if delusion it be, seems quite explicable by the general association with speech,' and so on. But in this instance of speech, I have gone much beyond the admission of this most general influence. Though in my chapter on 'The Speech-theory,' I have opposed to the utmost Mr. Spencer's view of a close and special connexion between musical cadences and speech-cadences, on which he bases the whole emotional effect of Music, I have attributed to speech a large share of the production in Music of definite nameable expressions, as tranquil, vivacious, capricious, and so on. Mr. Sully says: "Mr. Gurney's argument against Mr. Spencer is, I think, conclusive up to a certain point. Undoubtedly the resemblances between music as we know it and speech are not close; undoubtedly different kinds of emotional speech sometimes have the same musical qualities. Nevertheless this does not disprove the contention that, in a general way, music represents vocal utterance (a fact indeed which Mr. Gurney concedes); or that a particular melody tends to call up certain groups of feelings rather than others." I agree with the second member of the last sentence quite as much as with the first (which indeed I should word much more guardedly). I have devoted a long chapter (chap. 14) and many examples to the elucidation of these 'groups of feelings,' and of the definitely *expressive* qualities of music. It is true that I have referred these qualities not so much directly to *speech* as to facts of physical *impulse and gesture*, these being of a more universal and fundamental nature. But not only have I (at the end of the chapter on 'The Speech-theory') given speech special credit for certain more or less definite sorts of effect, in connexion with which I would fully accept Mr. Sully's description of musical beauty as 'often inextricably bound up with obscure suggestions of feeling' (*i.e.*, of feeling knowable and nameable outside Music); but I have said—'All those features of physical motion mentioned in the 14th chapter as having their counterparts in Music, which, as we saw, is able to suggest definite emotions so far as physical motions are themselves expressive of such emotions, may naturally be presented in speech. And the connexion of Music with the presentation of them in speech is naturally exceptionally close. For first, in the use of language under emotion there is not only the varied play of energy parallel to that which may be manifested by muscular exercise of other sorts, but this varied play takes effect in the actual material of Sound, and so obtains the widest and easiest channel for association with the art of Sound. And secondly, speech stands apart from other physical modes of expression

in having normally a large amount of *continuity*,' and so on. But all this opens up no sort of connexion between speech and our central musical problem, which concerns a pleasure-giving or distinctively *im*pressive quality present in multitudes of cases where definable *ex*pressive quality is either absent or present only in the widest and vaguest way. The proof of this would only suffer by fragmentary quotation; but I shall certainly be disappointed if any reader of my chapter on 'The Speech-theory' remains unconvinced on two fundamental points: (1) the general futility of attempting to connect *in detail* melodies—genuine organisms the separate intervals and fragments of which give no more idea of them than a number of scattered bricks gives of a building, and might equally occur in melodies of the most diverse characters—with 'that infinite and indefinite medley which, under the name of "cadences of speech," we find talked of as a set of universally recognised successions of tones, appropriated, one apiece, to every shade of feeling we ever experience'; (2) the hopelessness of getting any explanation of the individual pleasure-giving effect of melodies from the *general* qualities (loudness, rapid variation of pitch, width of interval, &c.) on which Mr. Spencer dwells; as proved by the facts that 'the effect (α) may be absent in the presence of all his conditions, (β) may be present in their absence'.

We have thus glanced at the three suggested bases of melodic beauty, one having to do with structure and order, the other two with suggestions of concrete external phenomena, movement and speech; and in none of the three do we find anything which will mark off for us those successions of tone which have, from those which lack, the particular quality presented as our central problem; the quality of producing, for any particular individual at any particular time, a particular impression, of which in innumerable cases no more precise description even can be given than that it is in a unique way agreeable. So far as any reader of my book is led to agree with me so far, I do not think he will feel the following further argument of Mr. Sully to be truly applicable:—"I think then that we are in a position to divine vaguely and imperfectly where the characteristic beauty of different compositions lies. Mr. Gurney's ably developed argument is really telling only against the mere formalist who holds that all beauty is resolvable into universal principles of form, and against the mere idealist who asserts that suggested emotion exhausts the mystery of musical charm. As against one who thinks that musical beauty is too complex a product to be explained by any one principle and depends on a subtle blending of many distinct influences, his argument looks very much like a fallacy of composition:—The charm of music is due neither to this, that, nor the other cause: therefore it is not due to all taken together." Recalling the fact that I am beginning at the beginning and dealing with the charm of distinct and short melodic forms, for which the vague general phrase 'charm of music' is a very equivocal substitute, I need only slightly expand Mr. Sully's last sentence, to be able to endorse it without laying myself open to any charge of fallacy:—I take two melodies, A with charm,

B without;[1] and I say, the charm of A is not due to order, for B is equally orderly; nor to suggestion of physical movement, for B bears just the same analogy to physical movement; nor to suggestion of speech, for B is just as suggestive (or unsuggestive) of speech: therefore it is not due to all taken together. What it *is* due to (primarily at any rate) is the fact that the notes in A go one way and the notes in B another; that A presents one set of sound-proportions, and B another, to the single faculty which can judge of such matters; so that however much such a faculty may be *deus ex machinâ*, it can hardly be deemed "unnecessary". Rejecting this simple hypothesis that the exercise which constitutes the *perception* of melodies as forms or unities has also a prime share in the *appreciation* and *enjoyment* of them, Mr. Sully finds what serves him at once as a solution of the problem, and an excuse for the impossibility of making good its application to particular cases, in the *number* and *complexity* of the elements to which he would refer the enjoyable effect: yet this bewildering host of subtly-fused ingredients turns out, when looked at, to reach the not very formidable number of three, which moreover are almost as easy to test as to count, and certain (if I am right) to be rejected on testing.

A few words must be added as to that single range of extra-musical association to which I have allowed high value in connexion with the characteristic melodic pleasure; that, namely, which appears in Mr. Darwin's theory of the primeval use of Music under conditions

[1] Mr. Sully thinks that I draw a too hard and fast line between beautiful and unbeautiful music. "To the scientific psychologist," he says, "there is no such distinction. Beauty is nothing but a special accumulation of pleasurable elements, and passes into the simply pleasant by insensible transitions. It is, as Mr. Cyples has well said, a massing of grateful impressions." This last point is certainly very generally true; though I must remark that a beloved melody has a most singular power of *seeming* simply intense without suggesting any complex massing of various elements of effect; and though I must persist, as shown in the text, in rejecting the actually suggested elements *en masse* quite as much as separately. But as regards the hard and fast line, in the case of multitudes at any rate it persists in drawing itself, for each individual, between certain bits of music which at a particular stage of his development give him the characteristic pleasure and those which do not. In dwelling on these cases, simply as being those which present the problem clearly and decisively, I in no way deny the existence of an enormous number of other bits, pleasurable in various degrees, which would bridge over the gap between the extremes. Nor do I see how my position is invalidated, as Mr. Sully thinks it is, by the fact of wide differences in the scope and in the verdicts of the musical faculty in different individuals. Till we can in some way see round it, and trace (as we never shall trace) its innermost connexions with the organism, I do not see what right we should have to expect entire similarity in its operations; though I must add that with persons of 'good ear' who have had similar chances in the way of becoming early familiar with the same music, the similarity of perception and taste in this region is often quite exceptionally close, in spite of wide difference in all other respects of character and intellect.

of sexual excitement, and its consequent transfusion with highly exciting emotional elements. As to this Mr. Sully says: "Is it not surely more philosophic to say that the more recent yet far extending ages of human converse with their vast accumulation of emotional experience must have had at least as much effect on music as the very remote and at the same time limited experiences of love-making among our pre-human Jubals? Mr. Gurney may say that the link of association is distinct in the two cases. But one may still ask whether the pleasure given to some anthropoid ape by the exercise of his embryonic musical faculty can easily be supposed to resemble in quantity or quality the pleasure given to a fully-developed modern ear so closely as to account for the wonderfully far-reaching transmission of emotional effect." But he is here scarcely putting himself at my point of view. The reason that I can accept Mr. Darwin's suggestion is that I think it possible (though extremely difficult) to connect it with that discriminating and autocratic character of the musical faculty, which is to me so prime a fact both of experience and of inference. But for this, Mr. Darwin's theory would be open (as he himself has most candidly admitted to me) to the very same objection that I have found to Mr. Spencer's and the other hypotheses we have been considering; namely, that its *generality* wholly precludes its meeting our point—that it could at most only help us to see why Music is emotional (which it too often is not), and not the least why certain progressions of sound are felt as having a particular pleasurable quality unfelt in others. I do not quite feel the weight of Mr. Sully's remarks about the remoteness of the suggested source; or rather, feeling their weight, I still feel that it represents only the kind of imaginative effort which in our day is being perpetually demanded of the evolutionist; for we are surely now familiar with the notion of the enormous remoteness of the time, and the crudeness of the material, from which our various mental faculties have been developed and sublimated. I have explained (in my 6th and 14th chapters) in what way I think the remoteness and crudeness in this case even favourable to my application of the hypothesis: here I can but refer again in passing to that particular fact of musical emotion which was prominent in our discussion of the musical faculty, and in which, though Mr. Darwin (being professedly unmusical) has not mentioned it, the real relevance and explanatory power of his facts seems to me to lie; the fact, namely, that 'Music is perpetually felt as strongly emotional while defying all attempts to analyse the experience or to define it even in the most general way in terms of general emotions'; that it presents 'phenomena charged with feeling, and yet in whose most characteristic impressiveness separate feelings seem as fused and lost as the colours in a ray of white light'; which is 'precisely what is explained, if we trace the strong undefinable affection to a gradual fusion and transfiguration of such overmastering and pervading passions as the ardours and desires of primitive loves,' and so on. And remembering Mr. Darwin's case of the gibbon, I see no objection to supposing the enjoyment taken in note following note by

our semi-human ancestors to have been akin, however little comparable in degree, to our enjoyment of note following note in a modern 'subject,' the embryonic strain containing in embryo that element of *musical order* which is characteristic of the developed one and is conspicuous by its absence in speech.

But while I do not fully share Mr. Sully's exact difficulty on this subject, I do find a difficulty, in the application of Mr. Darwin's theory, of the most serious kind which has never I think been recognised; or more precisely speaking, what has not been recognised is that Mr. Darwin's idea can be brought to bear on what I have called the central problem of Music only by a mode of application which involves this difficulty. For its discussion I must refer to my 6th chapter § 7: put in the briefest way, it lies in the process by which contact with the emotional spring suggested by Mr. Darwin can be supposed to be made and broken in the cases of impressive and unimpressive melody respectively. 'There is this fundamental distinction between the relation of Association to form in the visible and auditory regions, that in the former it is prominently connected with *special forms* (notably, *e.g.*, with the contours of faces and figures), while in the latter it' (*i.e.*, the particular and all-important range of association suggested by Mr. Darwin) 'is connected with a *special mode of exercise*,' that of the musical faculty, and *not* with any definite melodic forms common to us and our semi-human progenitors. We have to attribute to this faculty an independent view, an independent power of being satisfied, a discriminating sense of proportion in virtue of which one bit of its exercise proves immeasurably superior to another, while holding at the same time that the satisfactory result is *not felt* in independence of the emotional flow from the associational source to which it opens a passage, and to which the satisfactoriness or impressiveness *as we know it* should be mainly due. This difficulty, I confess, seems to me only less than that of leaving Mr. Darwin's suggestion on one side.

There is one subsidiary topic on which Mr. Sully again seems hardly to meet my point. In reference to my statement (in my 1st chapter) of the great difficulty which exists in accounting for the extraordinary delicacy and complexity of the auditory apparatus, whether by direct adaptation or by natural selection, he says that as regards the latter I seem slightly to overstate the case: since, "in the case of man at least, it may be plausibly contended that the perfect discrimination of vocal sound as to its quality or timbre and general level or height, even of the rough and constantly shifting sound which seems to characterise primitive speech, would involve an organ for the discrimination of pitch"; and "among all gregarious and social species endowed with a vocal organ . . . the structures supposed to be specially concerned in the perception of musical quality would tend to be evolved by natural selection". But he does not notice the important argument of Mr. Spencer of which I have quoted some sentences, and which I have never seen in any way answered. The argument is that 'as fast as essential faculties multiply, and as fast as the number of organs that

co-operate in any given function increases, indirect equilibration by natural selection becomes less and less capable of producing specific adaptations, and remains fully capable only of maintaining the general fitness of constitution to conditions'; and again 'as fast as the number of bodily and mental faculties increases, and as fast as the maintenance of life comes to depend less on the amount of any one, and more on the combined action of all, so fast does the production of specialities of character by natural selection alone become difficult'. I have given my reasons for holding that the delicate discrimination both of colour and pitch must be referred to an epoch when this argument would have its full strength. Speculation in those conveniently remote regions seems to me often scarcely to realise what it is about, in invoking the whole machinery of natural selection for minute changes of all sorts, at stages of development sufficiently advanced to make the invocation of the principle even for some very decided improvement of a *single* organ decidedly unsafe.

EDMUND GURNEY.

ARE WE "CELL-AGGREGATES"?

In his address at the International Medical Congress, Professor Huxley emphatically professed the biological doctrine known as the Cell-theory. He declared it to "constitute a permanent acquisition to physiological science"; and, very likely, there was not one among his distinguished audience who did not echo this faith.

It is no wonder, then, that an undistinguished investigator should find it rather hard to gain a calm and patient hearing, when his solitary voice is raised against the unanimous verdict of the most competent judges, from all parts of the civilised world. Indeed I should despair of ever establishing the deeper view of life and organisation, which, I believe, my studies have disclosed to me, if I were not convinced that a more faithful interpretation of nature must eventually displace a less faithful one. Leading biologists are naturally so occupied with work of their own, that they can rarely find time to gauge the results of novel researches, especially when they tend to give a new foundation to their science. However assured I may feel, that competent experts—if such could be induced to take the trouble to verify my researches—would, at last, be forced to give their assent to my conclusions, I have but little hope that this task will be undertaken for some time yet. But, leaving my own doctrines for the present out of sight, I claim as a right from philosophical biologists, however busy, a few moments' attention to the objections against their own theory, which, after years of laborious preparation, I have made known in this Journal (Nos. XVII., XIX., and XX.), and in the *St. Thomas's Hospital Reports* for 1879. Disentangling the most fundamental and obvious of these objections from all other matter, I venture to assert, that in a very few minutes I can incontrovertibly

prove to all those who consider the cell-theory the foundation of biological science, that they have built their house on sand. Any consistent thinker, who will summon up courage and fairness enough squarely to face the brief critical remarks which I am about to make, will, I believe, never after confidently proclaim himself a "cell-aggregate brought into harmonious action by a co-ordinative machinery". To reason and to common-sense alike, the conception is preposterous, and seems very obviously to betray what mere novices we are, as yet, in our scientific interpretation of life.

From the stand-point of the cell-theory, a "cell" is an elementary organism, an autonomous physiological unit. This is to say, that all vital actions of which it is capable take place within its own circumscribed individuality. They are intrinsic displays of its own properties. From *outside*, a "cell" can be vitally influenced only through stimulation and nutrition. Stimulation incites the display of its inherent functional capacities, and nutrition furnishes the material for its growth, repair, and reproduction. It follows therefrom unambiguously, that one "cell" can influence the life of another "cell" only as a stimulus, or as nutriment. These two modes of relation afford the only ways of vital intercommunication that can at all obtain between "cells," no matter what their number and what the special configuration framed by their grouping. The functional activities of all the billions of "cells" that are thought to make up one of the higher organisms, have thus to expend themselves intrinsically, each "cell" keeping its own vital performance all to itself, no other "cell" being able in the least to profit by the internal work of its co-partners. Any kind of summation or combination of the vital energies of a number of "cells" is a bare impossibility. Let a "cell," for instance, contract to its utmost, and its contraction cannot in any way intensify the utmost contraction of another cell, which we will suppose it has stimulated to action. Each physiological unit, being in itself a rounded individuality, has irreparably to enjoy in intrinsic solitude its own vital activities. Under such conditions there can exist no living medium, in which the functions of many "cells" can impress a compound effect or resultant energy. We have nothing but an aggregate of individual units, each separately reacting, by dint of its own indwelling vitality.

How then is to be conceived the mysterious "co-ordinative machinery formed by some of the cells" of the vital aggregate, composing a higher organism? We find in nature a joint-effect of contractile elements actually accomplished by the interposition of rigid bodies, such as tendons and bones, to which they are mechanically attached. These connecting media do not function in relation to muscular fibres as aggregates of so many living individuals, but only as coherent masses of solid material, vitally unaffected by the contractile elements, during the combination of their respective motions. Here in muscular activity, where we have seemingly before us a number of separate physiological units, the vital irritability and reaction of the combining medium had to be suppressed to render it fit to become

"co-ordinative machinery," to make it at all possible for a multiplicity of living units to co-operate with each other in a joint-effect. But the joint-effect as such, mechanically operated, could result only in a mechanical, not in a vital action. That which, nevertheless, remains vital in the concerted movement of the many contractile elements, is to be found on the other side of the motor arrangement, where the vital stimulus sets co-ordinatively going the activity of just so many fibres, for just this or that purpose. It is unmistakably through the nervous system that this kind and indeed all other kinds of vital synthesis are effected in higher organisms.

The task is to conceive the synthetical process from the point of view of the cell-theory. For this end we have necessarily to imagine an unbroken string of adjacent "cells," connecting the contractile elements with the one or many points, at which the initial stimulus is imparted. A "cell" can propagate a vital action only by inciting to function the *vis insita* of the adjacent "cell". It can influence in no other way, but as a stimulus, the vital activity of its neighbour. Take then as initial stimulus a prick of the skin, and you will require an unbroken file of adjoining "cells" to convey the stimulus from the skin, through the nerve-centres, to the muscular fibres, that are made to contract in consequence. This indispensable desideratum of cell-physiology is conceived as actually realised in nature by an interlocking system of nerve-cells and nerve-fibres, which latter are also considered cells, or parts of such. The entire nervous system has, in accordance with this view, to be conceived as composed of nothing but a web of such definite and most complex cell-connexions, having its beginning at the surfaces where external stimuli are received, and terminating in contractile elements.[1] It is clear that the sole effect of such a "co-ordinative machinery" can abut in nothing but the mass-motion of a definite number of muscular fibres, in obedience to stimuli externally initiated at definite points of the organism. And this is, apparently, what is actually experienced in so-called reflex-action—a propagation of stimulus and nothing more. In fact, nothing more, according to the cell-theory, can anyhow be demanded. For, under a co-operative arrangement of the kind here assumed, the intrinsic vital activities of the nerve-cells subserve only the purpose of forwarding the initial stimulus and of multiplying the same in definite directions. The vital commotion produced by stimulation in one "cell" can have no other effect on its neighbour or neighbours, than to incite a similar vital commotion also in them. The vital commotion of the "cell" can have no significance as such, so far as *co-ordinative activity* is concerned. If nevertheless it means some inward experience to the "cell" itself, its neighbours can never become aware of it. A "cell" cannot possibly impart this inward experience as a stimulus, or as nutriment, to any other physiological

[1] I leave out of consideration secreting and excreting apparatuses, as these belong to the "commissariat" and scavenger department, having merely to prepare and supply nutriment, or to remove waste-material.

unit. If a "cell" constitutes an individuality, it has to pay with absolute inward seclusion for the privilege of its autonomy. This is irrefragably certain, and the consequences of it cannot be slighted or evaded by serious thinkers. If science is to its votaries a grave and weighty concern, and not a mere pastime, we are standing here before its most momentous problem.

Only through mental realisation of the modes of existence of other beings, can the spell of individual isolation be broken. Only as a perceiving "monad," could a "cell" representatively participate in the inner life of another "cell". Have we then the remotest reason to look upon nerve-cells as so many perceiving monads, each realising perceptually more or less fully the inner life of other "cells"? Who of the cell-theorists, at the present day, will be found willing to adopt this conclusion, and to undertake the explanation of our mental life in accordance with it? Yet if the cell-theory is persisted in, this is exactly what it owes to us, unless indeed it be conceded that nerve-cells experience no inward realisation at all, that the entire nervous system is merely there as "co-ordinative machinery" to set muscles in motion.

To us it matters really not one jot whether our nerve-cells, if such we have, do possess inward experience, or not. Our consciousness is clearly not their consciousness. Our *I* cannot be possibly composed of any *we* of theirs. In irrelational solitude, each of them has to enjoy for ever its inner life utterly incommunicable, utterly exclusive. There can be, as we have plainly seen, no vital synthesis of their sundry intrinsic activities. No vital cell-medium is at all conceivable, in which their respective inward experiences could be combined as joint-effect. Their individual functional commotions, if at all accompanied by feeling, have to ring out separately without power of ever sensorially or inwardly influencing each other's lives in the least degree. The billions of cells of which the organic being, as a "cell-aggregate," is thought to be composed, are just so many *elementary* organisms, with just so many *elementary* functions, with just so many *elementary* unrelated sensorial experiences, if at all endowed with feeling.

Our inner life, on the contrary, consists of a unitary synthesis of most complex and diverse relations to other beings. It can therefore have nothing whatever to do with the many and primitive lives of nerve-cells. If, as we are all positively convinced, the nervous system is nevertheless subservient to our sensorial and other mental experience, it certainly cannot be so by dint of the inner lives or sensorial experiences of its "cells". The only conclusion to which the cell-theory here necessarily leads is, that the specific vital commotion of nerve-cells must be construed as stimulating a unitary, hypervital substance to those activities which we call our mental life. Indeed there have to be hypostatised *in vacancy* the virtues of exactly such a substance, as I, in my counter-theory, have conceived the nervous system itself actually to be. The initial points of sensorial stimulation, instead of being situated at the sensory inlets, would have to be

shifted to where the central "cells" have to impart their sundry specific commotions as stimuli to a mental substance. Under this arrangement nerves would be "field-telegraphs" indeed, but the "head-quarters" and the central telegraph-operators would be found nowhere within the confines of this world.

It is only want of insight that has hitherto prevented spiritualistic reasoners from utilising, as a solid basis of operation, these inevitable conclusions of our present biological science. I would earnestly recommend to them the serious study of biology. The science, that has of late so discomposed the even tenor of their thought, is now once more at their mercy. It is open to the humiliating taunt that, setting out with the avowed aim to explain life physically and chemically, it breaks down before ever reaching physics and chemistry. With the full mystery of vitality still on its hands within its units, the "cells," it fails even then to put complex life together out of the vital material it assumes. It is in the power of those who believe in a hypervital substance of mind, to force upon biologists the consciousness of their shortcomings. Let them render this one service to our science, and I will promise not too closely to examine the material with which they themselves are sure quickly to bridge over the biological gaps.

But what, it will be rejoined by scientists, can this raillery avail when the microscope actually proves to us that we are made up of cells and nothing but cells? If spiritualism is the necessary outcome of this positive state of things, then, whether we like it or not, we shall have to accept our telegraphic function, and purely mechanical mission in this strange world of ours. From this painful dilemma, into which we are driven by the cell-theory, a very few plain considerations will suffice to deliver us; for they will show that we are not at all microscopically composed of "cells". To begin with the muscles. A muscular fibre is considered by all biologists to be a physiological unit. Will any histologist then maintain that a striped muscular fibre is made of a single "cell"? On the contrary, many embryological "cells" become somehow fused together in its composition. But a single striped muscular fibre is not really a physiological unit, for it contains a great number of ultimate functional divisions. Can it then be rightly held, that each of these divisions corresponds to an original embryological cell? No investigator who has studied the subject would venture such an assertion. In a paper contributed to Pflüger's *Archiv*, Bd. XXV., I have recently demonstrated the chemical continuity of the entire contents of muscular fibres. If a muscular fibre partakes at all of the cellular nature, it must form a single "cell," a single elementary organism. It cannot be composed of many autonomous vital units. But taking the muscular fibre, in spite of embryology, as a single elementary organism or "cell," how is it brought into vital communication with the nerve-cell, that immediately stimulates its function? Do we find here, at this most important station of cell-interaction, a separate nerve-cell, whose inward commotion is inciting as a stimulus to functional activity the *vis insita* of a separate contractile "cell". Here, if anywhere, at the

junction of the two most distinguished tissues of our body the tenets of the cell-theory ought to hold good. Unfortunately just the reverse is what actually occurs in nature. The researches of the most careful investigators show that the active substance of the nerve is continued without break into the active substance of the muscle. Muscle and nerve are thus found to form but one single physiological unit, a nerve-muscular element. And now let us gather under one view and follow up all the motor nerves thus structurally united with muscular fibres. We find them all converging towards one centre, where they originate in a common central substance. At least this is the just and proper inference from the most reliable observations; for no histologist has yet with certainty discovered any cell-connexion between the beginning of a motor nerve and the termination of a sensory nerve. On the contrary, anatomical as well as physiological facts tend to show that the initial motor network originates in the same continuous substance in which the ultimate sensory network is seen to lose itself. And then again, the sensory nerves, in their turn, are also found to be continuous with the active substance of the organs, by which the external stimuli are received.

Thus, structurally viewed, the complex and developed organism, instead of forming an aggregate of "cells," forms, on the contrary, an unbroken living substance, or single physiological unit, stretching a vast number of prolongations towards the surface, as relational elements for the reception of specific stimuli, and ending in a very complex apparatus for the execution of mechanical performances.

Driven from the anatomical and physiological position, the cell-theorist will reply: 'Embryology teaches us unmistakably that one original "cell" multiplies, and its derivatives continue multiplying till, at last, the entire "cell-aggregate" with its "coordinative machinery" is formed. This sufficiently proves that all living structures, of even the highest organism, must be composed of the progeny of the one initial biological unit, the impregnated ovum.' The fallacy of this view is easily exposed. If the ovum were indeed an initial elementary organism, the procreative multiplication of which gave rise, at last, to the complex organism, then the divers successive cell-generations could be conceived only as so many alternate generations; the central nerve-cells forming necessarily the culminating generation. In this case, the initial reproductive units of such a series of disparate generations could be derived only from the culminating generation, the central nerve-cells. As the actual state of things is most conspicuously at variance with this necessary conclusion, it is evident that the ovum cannot be conceived in the light of a parent-cell.

Mr. Darwin, aware of these difficulties, has sought to explain in a very different manner the all-comprehensiveness of the ovum or germ-cell. His reasoning, so far as it concerns the cell-theory, may be thus summed up: As the complex organism is an aggregate of autonomous units, therefore everyone of its units has to be separately represented within the ovum; the ovum of a complex organism must be a collection of germs or gemmules from all its vital units. In spite of Mr.

Darwin's great authority in matters biological, this "provisional hypothesis" of his has met with very little favour, even among the most zealous adherents and promoters of the new biology, of which he is the acknowledged and venerated founder. Yet, after mature consideration, biologists will have to acknowledge that, if the cell-theory is true, then Pangenesis affords the only possible hypothesis of organic reproduction. Cell-theorists are not exempt from the scientific obligation of having to adopt the conclusions that necessarily follow from their premisses. They offer a theory of organisation. Pangenesis is found to be the inevitable consequence therefrom. They will, therefore, have to put up with Pangenesis so long as they persist in seeing in the complex organism nothing but a cell-aggregate. No matter that Pangenesis is itself powerless to explain anything concerning vitality and organisation; nay, that it only introduces new difficulties. The ovum, instead of being itself an elementary organism, and unlike other germ-cells that are composed of similar reproductive units, is conceived as a congeries of an immense number of germs of disparate elementary organisms. The mystery of vital properties is left residing in the gemmules, wholly intact and unexplained. The sole *raison d' être* of Pangenesis is the representation of all vital units in the ovum as demanded by the cell-theory. If the collection of gemmules from all "cells" into a single receptacle could be reasonably attributed to the action of a force already otherwise known in nature, there would be some little foundation for the completely imaginative assumption of gemmules, as actual existents. But an entirely new force has to be specially invented for the occasion. It is obvious that a theory which necessitates such an unnatural and anti-scientific procedure must be made up of erroneous conceptions. Thus the cell-theory is found to be also embryologically untenable.

Cell-theorists, however, will not yet yield their position, even when deserted by embryology. They will fall back on comparative biology. They will assert that the study of lower forms of life proves that many individuals combine in a concerted action, dividing among them the physiological labour otherwise accomplished by a single individual. The actual, more or less complete coalescence of a number of individuals into a single body render this question extremely intricate. Yet it was just the study of lower organisms that led me to form a conception of organic individuality in thorough opposition to that assumed by the cell-theory. I found the organic individual to be an original unit gradually differentiated through relational specification. Thus the cutaneous layer of an organism is originally a continuous structure that gradually becomes differentiated into separate areas of specific stimulation. It is not composed of a number of separate individuals that have ranged themselves together in order to execute among them the divided physiological labour of the sensory surface. The contractile layer, in a similar way, has become by degrees divided and sub-divided into separate muscles and separate muscular fibres. It is surely not the single muscular fibres, as elementary organisms, that have become associated together in order to produce muscles,

groups of muscles, and at last the entire muscular system. I feel, indeed, almost ashamed of the overwhelming support that nature is giving me in this contest with the cell-theory. From all points of view it proves utterly incompetent to explain vital phenomena and organisation.

To bring the latter points in question visibly before the reader, I offer a test-object. In my contribution to the *St. Thomas's Hospital Reports* 1879, I have depicted two little worm-like creatures Figs. 10 and 12. They very much resemble each other in size and organisation. Fig. 10 represents a ciliated infusorium. Fig. 12 would be classed, I suppose, under the Turbellaria. On rupture, and consequent imbibition, the cutaneous layer of the turbellarian form breaks up into a vast number of "cells". The cutaneous layer of the infusorial form remains, on the contrary, continuous under all conditions, disclosing no "cells" whatever. Consequently cell-theorists have to maintain, and do maintain, that the former is a being composed of a multitude of elementary organisms, whilst the latter, otherwise equally complex and most alike in organisation, is pronounced a unicellular animalcule. It requires, indeed, all the courage of blind logic not to shrink from such an assertion.

If cell-theorists persist in flattering themselves with the adequacy of their doctrine, still continuing to ignore its flagrant inconsistencies and shortcomings, even after they have been again clearly pointed out to them, it cannot alter the fact, that they are lagging far behind in their understanding of life. Perhaps, however, they may think it now worth their while to attend to the difficulties here exposed. If so, I may entertain some hope, that they will come to learn from nature the lessons forced upon me by an unprejudiced yielding to her teachings. Then we shall be delivered from the ludicrous position of having, *secundum artem*, to consider ourselves a congregation of ever so many primitive lives, and shall feel scientifically restored to the full dignity of indivisible, autonomous personalities.

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OBSERVATIONS ON CASES OF COUCHING FOR CATARACT.

The death of Dr. Jencken (Dr. Franz's patient) some months ago, recorded by Mr. Mahaffy in a note copied from the *Athenæum* into MIND XXII., 298, may form a suitable text for a few remarks on this subject. It is much to be regretted that Mr. Mahaffy did not become acquainted with this gentleman (I never knew him) until his memory of the facts had become more or less indistinct, and that even then he did not take more pains to clear them up. For Dr. Franz's observations, though usually regarded as among the best which we possess on the subject, present features which are to me utterly

inexplicable—except on the supposition that Dr. Jencken possessed the sense of vision in a far greater degree than was supposed, before the operation. On opening his eye for the first time, he said he saw "an extensive field of light in which everything appeared dull, confused, and in motion". An "extensive field" of light is rather a striking expression under such circumstances; but it is still more strange that the patient should have described the objects as "dull" if their colouring was really more vivid than he had ever seen before. Then, again, as to their "motion," if he had never *seen* motion until then, the immediate identification of visual and muscular motion is one of the most startling facts in the case. When his eyes were next opened, he described what he saw as a number of "opaque watery spheres, which moved with the movements of the eye, but when the eye was at rest remained stationary and partially covered each other": and on the third occasion he described these spheres as "less opaque and somewhat transparent" though more steady than before, and he was then for the first time able to "look through them" and to perceive a difference in the surrounding objects. In this description it is evident that if the patient used the terms in their ordinary signification, he perceived three dimensions of space from the first, since the very first things which he saw distinctly (whether the perception was real or illusory) were "spheres". But, granting that sight might have given him the notion of opacity, what are we to say of the epithet "watery" which he, who had never seen water, applied to these first objects of distinct vision? Are we to suppose that the want of consistency which touch detects in fluids is a direct perception of vision, or that he had a notion of the visual appearance of water before the operation? Then what explanation are we to give of the apparent motions of these spheres—of their increasing transparency and steadiness and of the power which the patient acquired of seeing through them—every word of the description implying the perception of trinal space? All this took place before Dr. Franz instituted any of the experiments which he records, and no serious effort seems to have been made to ascertain what the patient really meant by these most remarkable expressions. Nor when the experiments were made, does Dr. Franz seem to have paid sufficient attention to them. Thus he tells us that though the patient "knew by his touch that the nose was prominent and the eyes sunk deeper in the head, he saw the human face only as a plane"; and yet we are informed immediately afterwards that though the human face pleased him generally, he thought "the nose disagreeable on account of its form and great prominence". Probably these observations relate to different periods; but Dr. Franz states them as if they occurred at the same time. Mr. Mill has noticed the patient's assertion that the solid figures shown to him "were not drawings". A little cross-examination on this subject would have been useful. Other physicians, however, have been even more careless than Dr. Franz in making observations of the kind. Thus, according to Dr. Nunneley, his patient said that "everything touched

his eyes," and, he adds, "he walked carefully about with his hands held up before him, to prevent things hurting his eyes by touching them". A more absurd proceeding than the latter, if the objects *really* appeared to touch his eyes, it is scarce possible to conceive, especially if the hand appeared to touch the eye when in its normal position. But no effort seems to have been made to ascertain what the patient meant by saying that the objects "touched" his eye, though nothing is clearer than that he was not using that word in its ordinary signification.

A few remarks on the mode of conducting such observatiens for the future may not perhaps be out of place. Oculists are not, indeed, much to blame for the unsatisfactory results hitherto obtained, for until recently the main problem was supposed to be whether we originally perceive extension in two or in three dimensions by the sense of sight, and it was also taken for granted that we can attain the idea of extension by touch (or the muscular sensibility) without any aid from vision. But now the problem has assumed a different aspect. On the one hand, it is denied that unaided sight affords us any idea of extension whether in two or in three dimensions; and, on the other hand, it is contended that the idea of extension is so exclusively a product of vision that a man born blind has no true idea of extension at all. Now, if observations on couching are to be employed for the purpose of deciding between these theories, they must be conducted in a very different way from that hitherto adopted. First, more pains must be taken to ascertain exactly how much the patient was able to see before the operation and whether his previous idea of extension was exclusively, or mainly, a tactual and muscular one. A knowledge of visual figure and form does not at all imply a recognition of the particular figures and forms of outward objects. If we can see the figures and forms depicted on the retina, we may have a perfect idea of visual extension though no extra-organic object corresponds to our perceptions. Dr. Franz's patient believed that he saw external objects previous to the operation; and though the operator regarded this impression as a delusion, the failure of the patient to see more distant objects in the same direction may have been owing to the feebleness of the light reflected from them. Again, more attention should be paid to the earliest perceptions of the patient after the operation. At this period the eye is doubtless in too irritable a condition to be fixed steadily upon any external object; but if the question relates to the perception of extension and not to the recognition of particular figures, situations, and distances, this is really the stage which is all-important. The physician should in such cases not merely record the language of his patient, but endeavour to ascertain the meaning of it. In fact, if visual perception was really new to the patient, he could only describe it to others by its analogy to the perceptions of other senses which he had previously experienced. Cross-examination would probably bring to light whether his language was meant to be analogical, or whether the patient intended to assert a real identity between what was

now seen and what was formerly felt. Finally, when experiments on the perception of particular figures and forms come to be made, many cautions should be observed. First, the patient should get no hint that the visual form now before him was identical with any form which he had previously felt. If he was told, for instance, that one of the things before him was a circle and the other a square, he could hardly fail to notice four peculiarities in the one and an uniformity in the other, which would enable him to guess correctly. Secondly, before trying whether he recognised the identity of visual and tangible forms, care should be taken to secure the formation of *general* notions of visual form. Thus, if he had seen nothing but a blue triangle, his failure to identify its form with that of the tangible triangle would prove little, because the visual idea which he had formed might not be that of a triangle or even of a coloured triangle, but that of a blue triangle. Until he had seen several triangles differing in size, colour, position, and in the relative magnitude and inclination of their sides, we should have no reason to believe that he had formed the notion of what I may perhaps designate a visual triangle; and if he had not formed that notion—if the idea which he had derived from vision was less specific—his failure to identify the visual and tangible triangles could be accounted for on almost any theory. In fact, if triangles of different sizes and shapes were successively presented to an uneducated blind man, it is by no means improbable that he would fail to recognise the identity of their forms. The visual objects presented to the couched man should therefore receive names which were not associated with any ideas previously derived from touch or the muscular sensibility—suppose the letters of the Greek alphabet. By giving the same name—say Alpha—to blue, green, and red triangles, of all sizes and in different positions, we might insure the performance of most of the requisite abstractions; and when this had been done, the patient's reply to the question whether the Alphas were like anything which he had previously felt, would throw some light on the questions at issue. I think, however, the best course would be for the oculist to apply to a psychologist to assist him in making the observations. I was once applied to in this way; but the answers of the patient (before the operation) satisfied me that he possessed so much sight as to render subsequent observations of no use.

W. H. S. Monck.

PROF. ROYCE ON "MIND-STUFF" AND REALITY.

I regret that ill-health will probably for a long while preclude my replying to the able articles of Mr. Gurney (Mind XXII.) and Prof. Royce (Mind XXIII.) on the variety of idealistic monism advocated by Taine, Clifford, Wundt, and myself. But I should be glad to have permission to offer a few remarks on some of the issues raised by the latter of these two papers.

In the first place I must plead guilty to unpardonable laxity of diction in having said, even conjecturally, that "motion *is* mind-stuff, that volume of feeling *is* mass, and intensity of feeling velocity". What I intended to convey was the conjecture that the phenomenon motion may be such a mathematical function of the noumenon mind-stuff that the quantity of motion is always directly proportional to the quantity of underlying mind-stuff. I think, however, that Prof. Royce is too hard on me when he says that "there is something fundamentally unintelligible" in my assertion. For although in the other parts of my essay I had made the terms of mechanical science—matter, motion—to signify respectively permanent possibilities of sensation (in the sense of Mill) and changes in those permanent possibilities, in fact, to signify phenomena, and although I ought therefore to have adhered to this nomenclature throughout, yet I might, without greatly straining language, and certainly with good precedents, have made these mechanical terms to signify instead the hypothetical noumena which underlie the possibilities of sensation and the changes therein. Adopting this latter nomenclature, it may be true or it may be untrue to say that motion *is* mind-stuff, but it is obviously no longer nonsense. My object in saying "motion *is* mind-stuff" was to avoid an awkward periphrasis. However, I do not seek to excuse, but only to explain. Taking into consideration the context, I hoped I should not be misunderstood. I am accordingly glad to find that although Prof. Royce pronounces my assertion "fundamentally unintelligible," he has himself supplied the explanation with admirable lucidity and terseness on page 374. Barring the allusion to a pre-established harmony, I could not wish for a more precise statement of my fundamental position than that which the Professor supplies in the following words:—"Suppose, then, that the world consists of fragments of mind-stuff whereof each one is endowed with a capacity for the change, within certain limits, of its own intensity and quality. Suppose, also, that by some pre-established harmony (other source is hardly well conceivable) the alterations in one atom are uniformly connected with alterations in other mind-atoms, according to fixed laws. Then, indeed, the world of mechanism, of dead matter and motion, could be in a manner conceived. That is, one could understand how to each simple phenomenal mechanical effect, *e.g.*, a blow or a push, there corresponded some noumenal alteration in the mind-stuff atoms. Even the law of the conservation of energy would be capable of expression in terms of such assumed elements. Since velocity and mass would be interpreted in terms of ultimate alterations or permanences in the mind-atoms, all laws about velocity and mass could be expressed in the same terms." Prof. Royce is quite right in thinking that the doctrine of mind-stuff requires us to think of the noumenal world, not as consisting of unchanging atoms, but as a thorough-going flux after the fashion of Heracleitus.

By an easy transition I can now define my attitude towards Prof. Royce's statements that according to the mind-stuff doctrine "space-relations" must be "unreal and illusive" (p. 371), and that "at least

some mind-stuff is non-spatial" (*Ibid.*), and towards his question, "What meaning would there be in Euclid's axioms if the world were composed wholly of elementary sensations not grouped into conscious minds?" (*Ibid.*) Let us suppose a pair of mind-stuff fragments (I will not call them atoms, because I think we cannot legitimately form an opinion as to whether the Universe is a continuous or a discrete aggregate) A and B, and another pair C, D, such that A has exactly the same volume or massiveness, intensity, and quality as C; and B has exactly the same volume, intensity, and quality as D—such, in fact, that A, C are exact counterparts of each other, and that B, D are exact counterparts. Then, I conceive that the facts of causation in the Universe are such that A, B do not necessarily or usually influence each other (*i.e.*, produce changes in each other) in the same degree as C, D. These inequalities of mutual influence or causation give rise to the fact of Space in the following way. If A, B influence each other more than C, D, then the two phenomena corresponding to A, B (let us call them *a*, *b*: they may be quanta of motion, of matter, of force, of kinetic energy, or of some more complex function of mass and velocity[1]) are nearer to each other in space than the two phenomena (call them *c*, *d*,) corresponding to C, D. If A, B do not influence each other at all, then *a*, *b* belong to entirely different phenomenal worlds. They are not contained in the same space. Thus distance-relations in the phenomenal world appear to me to arise from irregularities of causation in the noumenal world. Since the time of Lobatchewsky it has been well known among mathematicians that more than one scheme of distance-relations is logically possible: since the time of Riemann, that all sorts of schemes are possible—that Euclid's Space, in which we fancy (perhaps correctly) that our phenomenal world is situated, is only one among hosts of logically possible spaces. Which kind of space, *i.e.*, which kind of geometry, actually obtains in our phenomenal world, must depend, on my view, on the particular kind of irregularity which prevails in the facts of causation of the noumenal world. All we know is that our Space does not differ perceptibly from Euclid's ideal Space, *i.e.*, from a flat, homogeneous, monodromic, continuous manifold of three dimensions. The view here advocated falls, I believe, under that division of views on Space which Helmholtz characterises as "aprioristic". It does not affirm that the space-nexus is itself a fact of the noumenal world, but it affirms, with Herbert Spencer (*Principles of Psychology*, I., 227), that "there is some ontological order whence arises the phenomenal order we know as Space". In this sense, then, I agree with Prof. Royce when he says that the great bulk of mind-stuff must be non-spatial. With respect to Time I conceive the case to be entirely different. I agree with Prof. Royce that "ultimate mind-elements, conceived after the

[1] I have *conjectured*, in my paper (MIND XXI.), that they are quanta of motion, but it seems to me quite premature to form a positive opinion. Physiological psychology is the only science that can throw light on the question.

analogy of our simplest sensations, *have a time-element*," and I thank him for thus insisting on the salutary but oft-forgotten truth that Time is a deeper fact in nature than Space. It is too much the fashion to speak of them as if they were about on a level. The phenomenal world and the noumenal world (at least as much of the latter as we can legitimately infer the existence of) both exist in Time, but only the phenomenal world exists in Space.

I do not propose here to enter on Prof. Royce's remaining difficulty, *viz.*, that of explaining consciousness as a mere aggregate of elements separately unconscious, further than to remark that I think a thoroughgoing nominalism helps us wonderfully here, and that I cannot conceive how Prof. Royce can explain the growth of psychical life in the embryo, the foetus, and the infant, on any other view. To do so must surely, unless we admit metempsychosis, involve at any rate the sudden creation of a "unity" or "entity" or whatever mysterious thing Prof. Royce conceives the ego to be apart from its constituent elements.

There are undoubtedly great difficulties in the way of conceiving conscious life as merely a stream of feelings—a "rope of sand," as Mr. Gurney calls it—but even if they should prove insuperable, they could at most be fatal to the doctrine of mind-stuff in its narrowest form. They could not affect what I personally am far more concerned in maintaining, namely that general doctrine of idealistic monism, which embraces Berkeley and Schopenhauer as well as Taine and Clifford, and which is equally opposed to dualism, to crude materialism, and to that strange monism, more than once referred to by Prof. Royce, which, while regarding the physical and mental as two faces of the same event, appears to regard both as equally real, equally ultimate, or both as equally apparent, equally derivative. We could still say with M. Taine that, in this dualism of the physical and the mental, "all the advantage lies with the mental event". If we were to adopt Mr. Spencer's metaphor and call matter and mind the x's and y's of our equations (*Principles of Psychology*, I., 627), we could still maintain that mind alone is the *independent* variable.

In conclusion, I would express my regret that M. Taine's early enunciation (in 1870, *De l'Intelligence*, I., iv. 2) of the mind-stuff doctrine appears to be so little known, also my great personal obligations to Mr. Herbert Spencer for the luminous suggestion on page 161 of the *Principles of Psychology*, Vol. I. How thoroughly M. Taine's doctrine coincided with that which has since been enunciated by Prof. Clifford and myself will be apparent from the following passage—perhaps even yet the best summary of it:—

"Suppose a book written in an original tongue and furnished with an interlinear translation; the book is nature, the original language is the mental event, the interlinear translation is the physical event, and the order of the chapters is the order of beings. At the beginning of the book, the translation is printed in clear and legible characters. But these become less so, as we go on, and here and there, from chapter to chapter, new characters creep in, which we have difficulty in connecting with the earlier

ones. At last, and above all in the final chapter, the impression can no longer be deciphered; but we have abundance of evidence that it is still the same book and the same language. It is just the reverse with the original text. It is very legible at the last chapter; in the one before it the ink is pale; in the earlier chapters we can still discover that there is printing, but can read nothing of it; before that again, all trace of ink has disappeared."

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VI.—CRITICAL NOTICES.

The Metaphysics of the School. By THOMAS HARPER, S.J. Vols. I. and II. London: Macmillan, 1879, 1881. Pp. lxxx., 592; xxvii., 757.

I.

In these two volumes Father Harper has given the first instalment of an attempt to resuscitate medieval ontology, and bring it into line with modern science, and to represent these as in harmony and mutually supporting and illustrative, to the exclusion of more modern philosophy. The metaphysic of the School and modern science (when modest and on its good behaviour) together furnish a sufficient rationale of the universe, and when Father Harper has completed his peace-making exposition, will have put all other philosophies from the Cartesian downwards out of court. So far as these two volumes go, it might perhaps be said that Father Harper has succeeded after a fashion. But it is very indifferently well, and the science will be found to be put on the "entities" like paint or artificial flowers. The sequel of this Notice, it is hoped, will go some way to justify these remarks. Yet taking the book simply as an exposition of St. Thomas and his orthodox following, and leaving out of count the apologetic, controversial and syncretic parts, it is careful, accurate, lucid, and full—almost overfull, and may be regarded as a valuable contribution to the history of philosophy. Certainly, after reading it, one finds other recent accounts of the metaphysic of the School, such as Cousin's, Jourdain's, and Hauréau's, meagre and uninforming. The only work that may claim to equal it in merit of exhaustiveness is Kleutgen's *Philosophie der Vorzeit*, which is not accessible to English readers. F. Harper's work must therefore be welcomed as a decided acquisition, and stands almost, if not quite, unique among English books.

Encouraged by finding that "not a few men of information and study in English-speaking countries, even among such as have devoted themselves to physical pursuits, who, tired with the ever-rising Babel of new philosophies and with the universal disintegration of scientific

thought that has resulted from what has been called the *critical* method, are looking back with a wistful glance towards the old philosophy, but are puzzled where to look for it," he offers "a course of scholastic philosophy suited to the needs of this 19th century and to the apprehension of men of culture". He would rehabilitate Reason which has been confounded and disintegrated by Descartes and the brood of scepticisms and idealisms that have proceeded from him.

He tells us he eschews "ideological" questions, and so has little to say about Nominalism and Realism, except by the way. Yet he says a good deal for Realism, and assumes more.

In the volumes published, he has treated of "the Definition of Metaphysic," "Being," "the Transcendental Attributes of Being," "the Principles of Being," and the first two of "the Causes of Being"—namely, Material and Formal Cause. Efficient and Final Cause, "the Primary Determinations of Being," the Categories of Aristotle, and Natural Theology are to come.

In all this he professes to follow Aquinas strictly; and, while mainly adapting Suarez's order of exposition, he holds to the master and revindicates his doctrine, wherever Suarez deviates in details. The exposition claims to be "elementary and popular," but is really as tough and abstruse and minute a bit of reading as one could find in a long day's walk round a library. While this is said to mark F. Harper's failure to fulfil his promise of "popular" style and treatment, it is meant in no disparagement. The result could scarcely be otherwise, where a man fully equipped for his task, earnest and conscientious, has applied himself to interpret Aquinas, the voluminous doctor.

F. Harper at great length defends the technical language of the School against the charge of barbarism, on the plea of necessity and relevance. But in these days such a charge is not likely to be seriously preferred by any who do more than play with science or philosophy, and might have been dealt with more lightly. Yet this is only the earliest indication of what proves to be a marked characteristic of F. Harper's treatment of his subject throughout, namely, diffuseness, reiteration, and almost painful elaboration of details. The multiplication of illustrations sometimes almost blinds us with excess of light. The multitudinous links and turns and windings of his chains of proof upon proof sometimes threaten to strangle comprehension and consent. Distinction within distinction, from subtlety to supersubtlety, often leaves little or no impression on the mind but such bewildered admiration as one accords to the ingenious artificer of a Chinese-puzzle or the writer of "The Lord's Prayer" within the circle of a threepenny-piece. And while F. Harper has made good in elaborate form his title to use technical terms, this will hardly cover from blame many frequently recurring words and phrases, such as "inamissible," "decretorial," "sensile," "absonous," "fautors," "ubication," &c., which give a somewhat quaint archaic and unenglish appearance to his pages. But this was perhaps the natural and unavoidable result of his special discipline and erudition.

In the first chapter there is an exhibition of the nobility and pre-eminence of Metaphysic, "Queen of Sciences," which reads like the unfolding of a pedigree by a king-at-arms; and then we are told that it is "the science of real being as such," and further that it considers "quiddities" and "essences," and does not deal with concrete existents; that it primarily investigates "the Transcendentals," namely, Being, and its three attributes, Unity, Truth, and Goodness, all which permeate and go beyond the categories; while it specially contemplates "the nature and properties of pure forms," *i.e.*, "spiritual substances," "for though," as Aquinas says, "it is the office of a Metaphysician to treat of all realities, in so far as they are included in the notion of Being, yet it behoves him specially to treat of separated and spiritual entities, because in them is preserved with greater perfectness the idea of Being," "as also because their special and particular nature is hidden from us"—whence the doctrine of souls and angels. Again, "it principally treats of Him who is infinite being, infinite spirit, First Cause". So we may look for a great deal of theosophy in what follows, and accordingly I wish it to be understood that, whenever I have occasion to handle freely the God of the School, I take it that I am not dealing with the infinite object of religion or its confessedly provisional ideals, but with the pseudo-scientific concept of theology, which I find put forward and used as definite and final.

Here, then, at the very outset, we have "being-as-such," "essences," "quiddities,' "pure forms" (which yet are "spiritual substances"), "realities," "spiritual entities," "God," &c., filling up the firmament of thought. And, so far as yet appears, they are brought in and set in view just as if they were objects of direct perception, each separate and complete in itself, and capable of standing alone. "Real Being" at least is taken to be so familiar and well-known an object, as to make us feel it to be almost impertinent to ask what it means for the Angelic Doctor and his interpreter. Nevertheless, we must put the question, and their answer will determine our agreement or disagreement with the School notion of a metaphysic.

It helps us, to what their meaning is *not*, to find that "logical beings" such as "second intentions" or forms and laws of thought, and "collective, negative, and privative concepts," are not "real beings"; and the two kinds cannot be subsumed under any higher category. "There is nothing which can be univocally predicated of both." Therefore, reality of being is something other than and independent of presence in consciousness, for that can be univocally predicated of both. Here it begins to dawn on us that the metaphysic of the School is a kind of absolutist ontology, and deals with things-in-themselves, and not as phenomena of consciousness, which, in some way not as yet made known, it gets at and presents to us.

Here then the paths divide, and here at the watershed is, as I think, the fountain-head of all the errors of the School. They take up "being-as-such" and "essences," as objects given ready-made and obviously known. They posit as separate from consciousness and

independent of it, a world of "singular and individual" existents, souls, bodies, &c., without asking themselves what they mean by so doing; and without preliminary search, by way of reflective analytic like Kant's or Renouvier's or Hodgson's, for the manner and process of the arising of such a world in consciousness, and the secret of its apparent or real detachment. Hence it is in vain that they claim for their metaphysic, as F. Harper does, the prerogative of "architectonic" to the special sciences. It cannot be the universal condition of the sciences; but it may itself be a science, if it can make good the only position that it is competent for it to take up,—that of some kind of organised direct perception. And to do so, it must fall back on its lines of communication, so to speak, on its peculiar psychology, and defend against all comers its intuitive faculty of understanding, which is the sixth sense of the schoolmen, and gives them the objects of their special science, *viz.*, "essences" as objects of direct and immediate intuition.

To show that I am not misconstruing F. Harper, I shall quote one crucial passage that appears to me to settle the matter definitively: "Real Being may be described, then, as a being which either exists or may exist outside of, or beyond, the objective concept of the intellect." Now, by "objective concept," he means that "reality in the object which is covered by our present thoughts." "Thus, an anatomist when he looks at an animal thinks only of its bodily structure. This reality, therefore, in the animal will be his objective concept." But this reality in the animal is not real being, which, as we have just been told, either exists or may exist outside of, or beyond it. Real being, in fact, is something more real than this reality, or any other such. It may or does exist apart from the objective concept or consciousness—*i.e.*, as other than object of any thought or knowledge. It is *Ding-an-sich*, but yet somehow the intuitive understanding gets a hold of it for us without destroying its unphenomenal irrelativity!

F. Harper proceeds next to teach us how to know "being-as-such" from "existence". "As a fact, the reality which is covered by the formal concept of essence is, in and by itself, really distinct from that other reality which is covered by the formal concept of existence." Observe the in-and-by-itselfness, and also that it is the realities themselves, and not merely the concepts of them that are "*really* distinct". In other words, because we can conceptually distinguish in reflection between the statement, *that* a thing is, and the statement of *what* a thing is, we are entitled to conclude that existence and essence or nature are *absolute* realities—each *totum teres atque rotundum*, and indifferent to its relation to any conceiving mind.

F. Harper does appear to waver sometimes in his absolutism, and to give a faint promise of the other view, which I hold to be the correct one, that neither "reality," "being," "essence," "existence," nor any thing whatever has name or meaning, but as presentment or object of consciousness; yet, on the whole, he keeps consistent with himself and his master, St. Thomas. Thus, on p. 48, Balmez is censured for maintaining that "pure being, in all its abstractness, is inconceivable

without actual being; it is existence itself". "If this be true," says F. Harper, "if the most abstract idea of being necessarily include *actual* existence, and is identical with it; then, there is no room for the doctrine of possibility, and the Universe is God."

The object of the inquiry which leads up to "the doctrine of possibility," is "to discover what a merely possible essence is, ontologically and independently of the mode of conceiving it". To the idea of possibility, "there must be a corresponding reality in the order of things". So "possible being," too, is dealt with from the dualistic stand-point. Besides possibility implies "power or faculty". Now, I take it that possibility is not a category of reality, but represents our individual and subjective ignorance and uncertainty about things and events, that are both actual and necessary. In respect of events, it is forward-looking, and represents our ignorance of a future which has no sooner come than we see it to have been necessary and, therefore, actual. If its cause or the sum of its conditions is present and actual, then the thing that may be, is and cannot but be. If not, it may not and cannot be, and falls under the category of the impossible, which is a real category. If a thing is thought of as possible, then the sum of its conditions is thought of as filled up, and the thing cannot then be thought of but as perceived or existent—and as *necessary* existence.

Prop. 8: "The concept of merely possible being, so far as it is possible and real, is the concept of some being or other not possible but existing." Here the School would appear to say the same thing; only it must be remembered that with them existence is always something other than perceivedness. But in this latter phenomenal sense, the proposition appears true. And it might be applied in criticism of Mill's "permanent possibilities of sensation," when it will be seen that they must be thought of as actualities, that is to say, as felt or perceived, though not felt or perceived here and now by the *individual* thinking. But with the School the concept of possible being is not thus resolved into the concept of the existence of the *same* being, but into "the concept of *some* being or *other*," that "in some sort precontains it," and in which it preexists "virtually, eminently or ideally". "So, the soul of man can vivify and develop the body which it informs; because vegetable and animal life, ... are eminently contained in the spiritual substance of the soul". But further, Prop. 10 teaches that a possible being or essence to be possible must be "logically contained" in some existent, *i.e.*, must be the representation of a mind, "for no efficient cause is perfectly prepared and ready for the production of its effect, unless it either knows itself what it is going to do, or at least is under the direction of some superior cause which possesses the necessary knowledge." The anthropomorphism is sufficiently naïve here. For the possibility of sausages, a sausage-machine is not enough unless it is conscious, for, if it is not, a sausage-maker must be added to ideally precontain them. The way we are now going is inevitable, once we have admitted that possibility is an ultimate and adequate category of reality, and not merely a subjective and provisional way of regarding and classing

from an abstract and individualistic point of view. Once committed to this pathway of the School, Prop. 14 is irresistible. "Beings are internally possible, forasmuch as they are contained logically and eminently in God; externally possible, forasmuch as they are contained potentially in Him." "The Infinite Mind, contemplating from all eternity his own infinitely perfect Essence, conceives it as partially imitable in infinite degrees of order and excellence outside himself, should he so will it." Here are at least four unanalysed assumptions —an infinite mind, an infinite essence, an infinite "freewill," and an infinite possibility of outsideness; and all four taken and treated—*more scholastico*—as separate entities. This deduction or postulation of a supreme artificer or artist was made necessary by mistaking possibility for something more than a negative logical subjective concept.

And yet in the end F. Harper is led to admit that "albeit possibles are possibles *formally:* yet possibles are not possibles fundamentally and in their Exemplar"—thus *virtually* upsetting the main premiss of his whole argument for "possible being". And the inconsistency does not take us by surprise, when he says in another part of his book, that "merely possible essence is distinguished from its after existence as not-being from being; and the distinction may be expressed by the formula, *Thing is really distinct from no thing*".

Next comes "existing being". Existence is "essence, quiddity, or nature as specifically determined to actual existence *hic et nunc*". "It stands for a being that really exists outside its proper causes." Is this not palpable tautology, and equal to Existence is existence? If not, it is saved from this predicament, as elsewhere F. Harper tries to save it, by borrowing the idea of God, ready-made and fully-furnished, from the creed of the Church, and thereupon placing the actuality of essences as distinct from existents, in His mind. Essences or pure forms actually are in Him as his thoughts, and so they are *within* their "proper cause". Existents are the same beings outside their proper cause. But it is plainly suicidal for what calls itself a metaphysic, and claims to be architectonic and regent of science, to serve, and lean on, any ecclesiastical dogmatic system in this fashion. If it must have its presuppositions, at all events let it not assume them from a source extrinsic and alien to Reason.

Let us try another of F. Harper's definitions of "existence". "The word is abstract and representative of a certain quiddity, by virtue of which things are truly said to exist." But surely this confounds thatness with whatness; and besides gives us two existences —(1) existence (2) existence by virtue of which existence exists—for solution returning us the difficulty doubled. On the same page, there is a second definition. "Existence is the actuality of being." This again appears like saying the same thing twice over, if not thrice. However, the author evidently means that essence as possible, being made actual by efficient cause, *i.e.*, the freewill of God, is existence. But this will not help one who has displaced "possible being" from being, and is not prepared to take efficient cause and divine freewill for granted. Besides, "cause" and "will" must be

conceived as existing, and how then can we take one or two existents to explain existence?

The last four hundred pages of Vol. I. are occupied with a very minute and detailed consideration of what are called "the three primary attributes of being in general". These are Unity, Truth, and Goodness. They are transcendental "determinations of being by explicit evolution of entity". It is to be specially noted that they are not characters of things as felt, known, or thought, but of being-as-such, *i.e.*, of things-in-themselves; else they could have no place in the metaphysic of the School. Transcendental Unity, for instance, is not numerical or quantitative unity. It is not relative to mind attending and counting. Truth is not the more or less approximately permanent consistency of knowledge or thought with itself. Goodness is not phenomenal and relative—the objective aspect of desire, conceived abstractly. But all three transcendentals are absolute characters of absolute being.

Unity is transcendental "indivision," and "the division between Being and its negation is sufficient for the genesis of the essential idea of unity, without any intervention of plurality". Just as if being and non-being were not formally "a many," namely, two ones, in as much as I must have twice attended. There is a very tempting pseudo-Hegelian air about St. Thomas's production of "one" by means of "naught," and deduction of "other" from "one," and "many" from "one" and "other"; but it is really genius misapplied.

Under the head of unity there falls to be treated the famous "principle of individuation". "Haecceity" is not a name for the mind's act of attending, abstracting, and conceiving—for a relative and provisional act of unification taken statically and objectively; but it is "the thisness of a thing, that something which constitutes an entity to be individually itself" and one. In fact, it is another thing-in-itself, absolute and irrelative to mind—again the original sin of the School in one of its endless transgressions. One result is, that the Scholastic "individual" is rigid and refuses to change or move, for "if matter quantitatively determined" (by mind) "were the intrinsic constitutive principle of individual unity, it would follow that the same material substance would be all but ceaselessly receiving new individuation, and become a nucleus of individuals indefinitely numerous". But is not this just what happens? Πάντα ῥεῖ. There is an ever-changing perceptual continuum, before it is broken up conceptually and provisionally into a many of ones. Haecceity is further explained in Prop. 46: "Every material substance, whether complete or incomplete, is the intrinsic constitutive principle of its individuation by its own actual and proper entity." In other words, every individual is individuated by its own individuality. This is not very satisfying, especially as we are hurried on to receive our first introduction to matter-*per-se* or "primordial matter," as one of these self-individuated individuals, and have the question put to us: "Who, save one who holds that material substance is itself a mere congeries of sensible accidents, could be found willing to maintain that, if the body of a living man were stripped of its quantity and other accidents,

the substantial matter would have no Haecceity or individuation, apart from that of the informing soul? And such an one, if he should chance to exist, will find no place for himself or his opinions in this work." I am sorry to have to confess that this is my plight—or worse, for I am not even acquainted with "the informing soul". "Modes" form another class of self-constituted individuals. "For instance, the union of my soul to my body is a real individual entity, distinct from my body and distinct from my soul". When asked to face this new phase or Haecceity, one is driven still further out of court, unless one chances to have about one "the particular reason, a special faculty by which man is enabled to apprehend individual material natures," *i.e.*, haecceities. If not, there is nothing for it but to be content with sensible matter, a mere empty and superficial bundle of accidents, quantities, and qualities—"the effect of the Haecceity, not its cause". "It is the province of the Intellect alone to contemplate Natures and Essences." Angels are another kind of self-individuated haecceities, and every angel is privileged to be himself a species! F. Harper proves it. "Accidents" again "are individual by their own actual entity," and each "has a distinct entity of its own"; so that, *e.g.*, "the quantity in a geranium, and the qualities of red, green, and the like are real entities, entirely distinct from the substantial entity of the plant". Once more we have the old fallacy of confounding elements only distinguishable in subjective analysis, with separate component parts in direct perception, and of taking conceptual abstracts for perceptual or intuitional concretes. It follows as a matter of course that "God *de potentiâ absolutâ* could create (or uphold) the accident without its subject". "Density," for instance, says St. Thomas. And, indeed, He does so in transubstantiation. After a vain effort to understand these matters that are too high for us, it is some comfort to find St. Thomas and F. Harper deciding that God could not cause whiteness to exist unextended, though Suarez and others of the School are disposed to think otherwise. Under cover of the Master's last *dictum*, we take leave of Haecceity.

The next subject taken up is "Formal and Universal Unity". When St. Thomas says, "There is nothing really common to many; for what really exists is a singular communicable to one alone. But that which is common is a creation of the intellect,"—he appears to be a conceptualist or nominalist, and of the ordinary modern way of thinking about generals and universals. But here a distinction must be made. He does not get them in the ordinary way—by abstraction and generalisation from sensible things or percepts. From sense generalised no *true* universals can come, but only collective concepts of accidents. "Intellect" penetrates to substance, "intues material things immaterially," discerns the essence or quiddity and "the unity of the essence"; and that is "a potential universal". The "intellect" then abstracts it, takes it out of its accidental setting, and applies it indefinitely, and it so becomes a proper full-fledged "universal," in itself as such only *ens rationis*, but in its ground, an absolute entity. It easily follows that there can be a universal by intuition without

either precedent or subsequent generalisation; and "the existing similarity of entities to each other, even in their essential notes, is not necessary to the constitution of a universal".

A hundred pages are devoted to Truth. About "conceptual truth" there is nothing said that differs much from current views. Consensus appears to be the criterion of Truth in this sense, for Aquinas, commenting on Aristotle's dictum, Ὃ γὰρ πᾶσι δοκεῖ, τοῦτ' εἶναί φαμεν, says, "It is held as a sort of principle, for it is not possible that the natural judgment should err in all men".

But such sublunary truth has nothing to do with being-as-such and metaphysics. Transcendental Truth, Truth of Being, is "the Being itself as naturally fitted to cause in whatsoever intellect a true estimate of itself". It is the being as *cause* of assimilation and conformity to itself—as having *power* to make itself intelligible and certainly known. In short, object is taken, as usual, as *separate* from subject, the known from knowledge, and then a *power* has to be assumed in the object to bring them together into one. The assumption ceases to be necessary, and Transcendental Truth to have any meaning, when we take them as we find them in reflection, and deal with them as inseparable though contra-distinguished aspects or sides. Even St. Thomas and F. Harper seem to waver and be disposed to take a phenomenal view, when they call a judgment "a real entity"; and a sense-percept "a real being"; unless their use of the words "entity" and "being" indicate a clinging to the separatist view. Yet carried out strictly to its issues, their admission would lead them to give up things-in-themselves, and "the science of being-as-such".

But if they do hold on to them, it must be said in their praise that they nobly contend for the perfect conformity of being and thought or knowledge, and generously furnish us with a faculty for reaching their substances, substrates, essences, &c. Prop. 87 affirms that "there can be ontological falsity, properly so called, neither in respect of the divine, nor of the finite, (either speculative or practical) intellect". In other words, their faith, unlike the despair of some modern absolutists, is, that, while the unknown will always extend infinitely beyond the known, still there is and can be no impassable barrier to knowledge, and no ultimate unintelligibility and unknowableness. They do not dogmatically rob mind and science of their endless career. This faith and hope is worthy of all praise, and most opportune. But it can only find its justification in a thorough-going phenomenalism.

The last proposition on Truth is a curious one. "Falsity in the judicial act itself is justly attributed to the will." All false judgments are wilful! Erroneous opinions are therefore more or less blameworthy, and perhaps they ought to be punished? Intellectual error is of the nature of sin and crime. So the Church philosophy has supported the Church executive in the middle ages, and since.

Transcendental Goodness is explained in this way:—Every being, in so far as it has being, has perfection; and this perfection which is one with being, and which causes itself to be desired, and becomes a final cause, and "spreads, communicates, and diffuses itself," is transcen-

dental goodness. Prop. 100: "Every being as such is good". The proof is poetical: "for those things which as yet have no share in Being, tend towards Being by a sort of natural Desire;—while those things which have Being already, naturally love that Being of theirs, and preserve it with all their might:—therefore, Being itself has the nature of Goodness". There follow two disquisitions on whether "mathematical entities" and "primordial matter" are good in themselves. The latter is good, and its "form," too, because it naturally desires its form, and its form naturally desires it. As creative of desire in each other, these two beings are good. And if this appears too dramatic a reason, there are, as usual, half-a-dozen others in reserve.

Then as Being is Goodness, and Goodness is Being, Evil is nought. But not every non-being, "negation or limitation," is evil; only "privation of *due* perfection". Here the idea of ought-to-be is allowed to slip into the argument, ready-made and unaccounted for. Moral evil, for instance, is privative of a *due* and higher good. As an act of will, sin is positive; but as sin or evil, it is privative, and merely the non-being of that which ought to be. Again, suffering is positive, but is not Evil. Grief and pain are occasioned by evils, but are themselves positively good, for they are in themselves emotions or feelings which are excellences or perfections of our nature, and in their effects they are good and salutary. Thus defended from objections, and established, the non-being of evil forms the basis of a Theodicy. And what contributes very materially to the superstructure is "this *revealed* truth," that there is no natural or physical evil in the lot of man, for "it is held, according to the tradition of the Faith, that a rational creature could not have incurred any harm either in soul or body or in any things external, save for some previous sin, personal or original". Freewill has wrought all the mischief. But I cannot see how evil-as-such, *i.e.*, as non-being, can have that or any other "efficient cause"; nor, inasmuch as nothing can neither aim nor be aimed at, how evil can be either "efficient" or "final cause," means or end, of aught.

With "Transcendental Goodness" the examination of Vol. I. ends. It has brought out, amongst other things, that the School makes a beginning and effects an illusory appearance of progression by taking abstract products of mental analysis and distinction for separate and independent concrete objects; objectifies individualist and provisional points of view, as in the case of "possible being," and then treats them as "entities"; feigns a faculty for discerning those various things-in-themselves, called "the intuitive understanding"; and does not think freely and without prejudice, but moves warily within the rigid limits of a body of foregone conclusions, the Church creed, from which it never scruples to borrow, when distressed for want of a principle of explanation, and to which it is always subservient. Scholasticism is, in fact, the outcome of an impracticable attempt to serve two masters, Reason and a preternatural revelation. With one eye always on the infallible creed, it suffers constantly from obliquity

of vision. This will come out into even clearer light, in the critical notice of Vol. II., which is to follow. In it, F. Harper brings the metaphysic of the School into more direct contact with modern science and its philosophical implications. It remains to be seen whether the contact results in collision or coalescence.

J. Burns-Gibson.

History of Materialism and Criticism of its Present Importance. By Friedrich Albert Lange, late Professor of Philosophy in the Universities of Zürich and Marburg. Authorised Translation by Ernest Chester Thomas, late Scholar of Trinity College, Oxford. In Three Volumes. Vol. III. London: Trübner, 1881. Pp. 376.

The first edition of the *Geschichte des Materialismus* appeared in 1865, the two volumes of the second and enlarged edition in 1873 and 1875. The English Translation in three volumes, the first of which appeared in 1877, has now been completed. The time that separates us from the first appearance of the work is thus not long; but perhaps it is long enough to enable us to approach it with some hope of forming a dispassionate judgment of the place it is likely to hold in philosophical literature. The estimates that have been formed of it both in Germany and in England are so various that the critical evaluation becomes a matter of considerable interest. In Germany the influence of the *History of Materialism* upon the younger philosophic generation, and still more upon the floating mass of semi-philosophic, semi-scientific speculation certainly exceeded for a decade that exerted by any other recent work, if we except the temporary *furore* excited by Von Hartmann's *Philosophie des Unbewussten*. Perhaps it is not too much to say that Lange's work constitutes the chief stock-in-trade of a good many of the philosophical *Docenten* and Extraordinary Professors. One of the acutest of these, Dr. Hans Vaihinger, insists that Lange must be ranked as one of the chief philosophic figures in the second half of this century. He accepts Lange as his master, and sees in his reading of Kant "a definitely conclusive critique" of the philosophic endeavours of the past and the present. In this country general attention was called to the *History of Materialism* by the high eulogies of Prof. Huxley and Prof. Tyndall—eulogies which embraced not only the historical exposition, but the substantive doctrine which the work was meant to enforce. As an offset to these estimates it is only necessary to refer to the extremely disparaging judgment of Prof. Flint in his *Anti-Theistic Theories*, endorsed by Prof. Adamson in his elaborate criticism of the standpoint in his *Philosophy of Kant*.

The variety of estimate is due to the fact that the *History of Materialism* is more than a History in the ordinary sense of the term. It aims, as already hinted, at enforcing a doctrine. The whole development of Materialism, and, indeed, of science and philosophy—for Lange by no means confines his attention to Materialism proper—

is meant to lead the reader to the position which was, for the author, the last result of philosophic wisdom. In this sense the book is undoubtedly what Von Hartmann called it—a *Tendenzschrift*, and Lange himself never denied the fact. His first object, he says, was to exercise an immediate influence; and in spite of the wider scope of the purely historical element in the Second Edition, "the essential purpose of the book," he maintains, "still lies in the attempt to clear up principles". Lange does not claim for his work the character of a formal historical monograph; it is intended, in the first instance, to teach and enlighten. So much is contained in the title, which describes the book as a "History of Materialism and Criticism of its Present Importance." The first half of the work points throughout, according to the author's conception, to the philosophical deductions of the second. Here he gathers together the main results of science within recent times; connecting the achievements of research in different spheres, he points out their significance as modifying our total conception of the world. He subjects to a searching criticism the theories that scientists have based upon their discoveries, and then proceeds to draw the total picture of the world as science now reveals it, or tends more and more to show it to be. Finally he indicates the relation of this conception to Materialism and his own philosophic deduction from the whole course of the investigation. Such a program carried out by a man of clear, quick intellect, versed in science, and gifted, besides, with a keen philosophic interest and very considerable philosophic grasp, could not fail to attract intelligent attention everywhere, especially on the part of philosophers and scientists who felt their own culture to be one-sided. The easy intelligibility and bright popular style of the historical parts attracted many readers, but the chief interest lay in the lesson or moral of the book—in the philosophic position of the author. It is this, of course, that is in question when his 'influence' is spoken of. Vaihinger calls the position Criticism, that is, Kantianism pure and simple; but it is more generally known as Neo-Kantianism, so far as that is considered as a definite doctrine, and not merely as a philological activity.

The historian of Materialism, then, was not himself a Materialist. He called himself a Critical philosopher, and it was his belief that Kantianism is a final refutation of the claims of Materialism to be a complete account of the world. The importance assigned to Kant in this reference is apparent in the somewhat disproportionate division of the contents of the book into "Materialism before Kant" and "Materialism since Kant". The division seems inappropriate, because very little indeed is said of systematic Materialism since Kant; the first part, in short, contains nearly all the history, while the second is an exposition of principles and a statement of results. Objection might also be taken to it, because the principle of division does not arise out of the subject-matter; the Kantian philosophy was not developed in relation to Materialism. These formal objections, however, may be dismissed, when the peculiar relation is considered, which Lange believed to exist between Materialism and speculative philo-

sophy in general. This relation it was that induced him to write his *History*. He is not a Materialist, but he maintains that Materialism is relatively true as compared with all other philosophical systems (except Kantianism). It is in his view the only consistent theory of the universe, and within its own limits it may claim to be demonstrated with increasing clearness by the progress of science. But it has its very definite limits which it reaches almost at the outset of its development; and no amount of progress in the reduction of phenomena to modes of mechanical motion can ever enable it to overpass them. It is by the recognition of such a limitation that Lange separates himself from dogmatic Materialism. "Atomism is as little able to-day as in the time of Democritus to explain even the simplest sensation of sound, light, heat, etc. . . . Science is for ever precluded from finding a bridge between what the simplest sound is as the sensation of a subject—mine, for instance—and the processes of disintegration in the brain, which science must assume in order to explain this particular sensation of sound as a fact in the objective world. . . . The sensation is not in the *individual* atom and still less is it in an aggregate of them. It is produced and determined by means of a *Form* in which the atoms act in mutual co-operation. But Democritus was careful not to follow up the formalistic side of his own theory, which leads into the depths of metaphysic. Here it needed the Kantian critique of reason to throw the first weak ray of light into the abyss of a mystery, which, after all the progress of our knowledge of nature, is yet to-day as great as it was in the time of Democritus" (*Translation* I. 23, 28). Sensation, then, as a subjective modification, and the formal unity which it implies, constitute the rock on which Materialism must always split; that is to say, Materialism is incompetent to the explanation of consciousness in its lowest as in its highest manifestations. And it is just here that Lange falls back upon Kant. A sensationalistic scepticism had already, at different times, demonstrated the impossibility of establishing the Materialistic position. To Protagoras, to the Berkeleian analysis, to Hume, Materialism is powerless to reply. But Scepticism, Lange seems to say with Kant, is not a permanent state for human reason. So far as Sensationalism is not eked out, as it is in Berkeley, by dogmatic assumptions, it passes into unmitigated Scepticism. But Scepticism is not sure even of itself, and it paralyses reason by casting the shadow of doubt over the whole structure of knowledge. Kant, on the contrary, draws the boundary-line between our necessary knowledge and our necessary ignorance. He shows us what we know and in what sense we know it; what we are ignorant of and why we must remain ignorant of it. Lange follows here, it may be said, Kant's own view of his relation to Hume. Lange believes that he holds in its main outlines the Kantian scheme of the world as it appears to the theoretical reason. The accuracy of his contention will be afterwards examined, but it is necessary first to sketch the nature of this *soi-disant* Kantianism.

In Kant, according to Lange, we find the tables completely turned

upon Materialism and the formalistic aspect of the world triumphantly vindicated. The nature of experience is here proved to depend upon "the organisation of our thought". It follows immediately from Kant's Copernican reversal of standpoint that "the objects of experience altogether are only *our* objects; that the whole objective world is, in a word, not absolute objectivity, but only objectivity for man and any similarly organised beings, while behind the phenomenal world, the absolute nature of things—the thing-in-itself—is veiled in impenetrable darkness. . . . Our whole experience is conditioned by an intellectual organisation which compels us to experience as we do experience, to think as we do think, while to another organisation the very same objects may appear quite different, and the thing-in-itself cannot be pictured by any finite being" (*Trans.* II. 156, 158). In other words, our Ego—the supreme form of knowledge—being furnished with the categories and the intuitions of space and time, determines accordingly, or translates into this language, the raw material (unknowable till so translated) which is given to it in sensation from an unknown source. The atoms, therefore, and the space in which they move are creations of our own thought, and the reality which lies at the bottom of this phenomenal world remains, as Lange says, "veiled in impenetrable darkness". Matter, as we know it, is the product of our "physico-psychical" organisation (an organisation, that is, which may be indifferently regarded as physical or psychical). We cannot overleap our organisation, and, accordingly, we can never know what the reality of the universe is; but so much at least is plain, that it is not matter that makes us, but we who make matter We do not, however, know even ourselves as we really are. Reality is as much hidden from us here by translation into the terms of the organisation as it is elsewhere. "The transcendent basis of our organisation remains just as unknown to us as the things which act upon it. We have always before us merely the product of both" (*Tr.* III. 219). Experience is thus a connexion of ideas due to the interaction of two unknown factors. Inasmuch as our ignorance of these factors is absolute, it does not appear why we should say that there are two; how do we know that the organisation and the so-called matter extended to us in sense do not both spring from a common root? They may both be the manifestation of "an unknown third".

Such being the schema of Lange's world, the limits are apparent within which Materialism is relatively justified. All phenomena, he says, are ultimately reducible to matter in motion; where science has not actually reduced them to this expression, their ultimate reducibility is still a necessary hypothesis. The term 'matter,' perhaps, cannot be sustained; for science tends more and more to dissipate the solid atom and transform it into a mere ideal point or centre of force. But the mechanics of motion are not affected by such a change in the mode of conceiving their basis. This mechanism constitutes the ultimate expression of the phenomenal world, even of that part of it which is the basis of consciousness in man. Changes in the actual

world are not brought about by abstractions like thought and will. All changes are transformations of energy and can be rigidly traced to mechanical antecedents; states of consciousness are merely the subjective accompaniments of these changes. The human consciousness, in the whole range of its thoughts, feelings, and volitions, is on its physical side a part of the unending transformations of energy; and, as psychical is merely the physical contemplated from another side, it may be said roundly that man himself is altogether included within the circle of mechanism. At this point, however, Lange puts in his caveat. We must not forget that the whole world of science is the creation of our own organisation, and we have no means of knowing whether it corresponds to the truth of things. In the very act of determining the world of the senses as phenomenal, we make room for at least the possibility of another world, which we may, if we like, call, with Kant, the intelligible world, but for which Lange prefers the name ideal. There is, moreover, an architectonic tendency in our nature—an impulse after harmony and unity—which refuses to rest satisfied with the picture of the world as unrolled by science. To speak with Kant, the nature of our intelligence is not exhausted in the senses and the understanding: Reason with its Ideas must be added before the account of experience is complete. Reason, in the special Kantian sense, is pre-eminently the faculty of synthesis. The Ideas are presented in the theoretical sphere merely as ideals, or rather as principles of method; but Kant endeavours, as every one knows, to demonstrate their reality in Ethics and in the system of Ethico-teleology based thereon. Lange, however, puts aside Kant's whole activity outside the limits of the theoretical reason. "The whole practical philosophy is the variable and perishable part of Kant's philosophy. Only its site is imperishable, not the edifice that the master has erected on this site" (*Tr.* II. 155). At this point, therefore, Lange connects himself more loosely with Kant. He accepts from him merely, on the one hand, the notion of an ineradicable tendency in human nature to construct for itself the idea of a harmonious whole, and, on the other hand, the "site" left vacant for the satisfaction of this tendency by the limitative conception of the *Ding-an-sich*. "The postulated possibility" of this ideal world rests, as he expresses himself, "on the notion of things-in-themselves as opposed to phenomena." On this site, then (namely in the vast sphere of possibilities left vacant by the conception of human reason as merely a contingent form of representing things-in-themselves), we are free, nay, we are irresistibly impelled, to build up a world that shall satisfy our ideas of order, goodness, and beauty. But let us beware of applying to our construction the category of truth. The ideal world is not a world of facts; it is a world of "values" (Werthe); and it fulfils its function if it satisfies and elevates its constructor. Truth is a conception valid only in speaking of the absolute nature of things (which is veiled in impenetrable darkness), or in speaking of the empirical truth which consists in connecting particular with particular correctly within the mechanism of the sensuous world.

Nevertheless the systems of metaphysicians, the ideas of religion, and the creations of art are all justified. But they are justified precisely on the same ground; all alike are shaped by free phantasy to be a refuge for the human spirit from the unsatisfying nature of the actual world. The ideal world, just because it is ideal, is not real; yet we flee to this 'realm of dreams' as to "the true home of our spirits". Its clear atmosphere leaves us braced up and internally satisfied, as we can never be by what appears, from this ideal height, as "the heavy dream of actual life" (des Lebens schweres Traumbild). Such has been the beneficent function of poetry in all ages, and such may continue to be the function of metaphysic and religion, if men will consent to treat them not as science but as poetry. All the errors of metaphysic in the past and its pernicious influence on scientific investigation have been due to the want of this transcendental topic, as it may be called—to an ignorance, that is, of its true sphere. It is imperative that metaphysic and religion be co-ordinated not with science or knowledge, but with the artistic impulse in man. The future progress of humanity and its escape from the paralysing influence of Materialism depend on the capacity of men to grasp this distinction and to elevate themselves to "the Standpoint of the Ideal". For metaphysic, religion, and (in a certain sense) ethics have no resting-place for the sole of their foot within a world which is proved to be a mechanical system; and this conviction must by and by come home to the general consciousness of mankind. It is essential, then, that a refuge be provided against that day, and it can only be supplied by such a view of the Ideal as has been sketched. A perfect example of such a use of the Ideal is presented to us, according to Lange, in the philosophical poems of Schiller. It is not to be forgotten that the impulse towards the more beautiful and perfect world of poetic synthesis springs at bottom from the same transcendent root of our nature which gives us through the senses the picture of the actual world. Yet this should not inspire any craving after a possible actualisation of those ideal forms. The *mythus* is to be accepted frankly once for all as *mythus*. (See Preface to Vol. II. of the *Geschichte*, written within a year of Lange's death.)

Two points require to be considered in regard to this somewhat striking theory. First, Is it a legitimate interpretation and development of the Kantian theory of knowledge? Second, Is it a real deliverance from Materialism, or in itself a tenable philosophic position? Both of these questions must be answered, it seems to me, in the negative.

The denial of the possibility of real knowledge and the consequent abolition of all ontological theories, including Materialism, may certainly be presented with some plausibility as the gist of the *Critique of Pure Reason;* but if everything is left out of account except this, there is really no distinction left between Kant and Hume. Custom will serve quite as well to connect our sensations as an "organisation" whose basis remains completely unknown. And the notion of the thing-in-itself is so far from being peculiar to the Kantian philosophy,

that it must, on the contrary, be regarded there merely as a 'survival'. It was by the presupposition of such a thing that Hume was able to dissolve 'the ideal theory,' as it was called, into scepticism. The nerve of Scepticism has always been a supposed reality in the background, which man's faculties did not enable him to reach. And no sceptic, I imagine, would deny the possibility of utilising this vague background as a site on which to build up ideals of the fancy; though he probably would not consider that this constituted a new philosophic position. There is evidence all through the *History* that Lange draws no distinct line between Scepticism and Criticism. He says, for example, of D'Alembert that "he felt himself tempted to believe that everything we see is but sense-appearance, that there is nothing outside of us corresponding to what we believe we see. He might have become for France what Kant became for the world, if he could have held fast to this idea and had raised himself but a little (nur einigermassen) above the level of a sceptical fit". This makes Kant merely the definite expression of a mood as trite as it is idle. The "fit" is raised, according to Lange, to a settled conviction by the results of the physiology of the senses. Kant's "lasting merit" is his proof "that our categories play the same part here as our senses". By way of explanation it said that the categories, or 'Begriffe,' do not themselves exist prior to experience, "but only those dispositions (Einrichtungen) by which the impressions of the external world are combined and arranged in accordance with these conceptions. Perhaps some day the basis of the idea of cause may be found in the mechanism of reflex action and sympathetic excitation. We should then have translated Kant's pure reason into physiology and made it more easily conceivable" (*Tr.* II. 211). This is followed up in a later chapter by the assertion in so many words that "the physiology of the organs of sense is developed or corrected Kantianism". As an additional proof that this was the habitual light in which he regarded the Kantian position, we have the incidental remark that "in Kant's time the knowledge of the dependence of our world *upon our organs* was generally in the air". The gist of Lange's Kant is thus the physico-psychical organisation; itself a manifestation of x, it receives impressions from an unknown source, and the result of this interaction is the phenomenal world. Such an idea, however, is not Critical but Dogmatic. Dogmatism may be said to consist in the assumption of 'things' (material or spiritual) prior to experience out of whose action experience is constructed. Criticism, on the other hand, aims by an analysis of experience, as such, at discovering its necessary elements; and one of its results is to exhibit the opposition of subject and object—the two 'things' of Dogmatism—as constitutive of the very notion of self-consciousness. Criticism, therefore, does not, like Dogmatism, *transcend* experience either on the side of the subject or of the object; its subject and object are within the process of experience, which the Critical philosopher necessarily regards as his given unity. I do not contend that Kant himself consistently adhered to this point of view; otherwise it would have been impossible

for Lange to have found any support for his own scheme in Kant. But Lange's substitution of the notion of a physico-psychical organisation for the Kantian unity of self-consciousness and the categories is not an occasional divergence, but a total lapse from the Critical position. Lange's account of the organisation is very vague, but it is plain, at any rate, that he transforms conceptions which are intended to express the nature of experience itself as a unity into a subjective *prius* or disposition which receives impressions. He betrays himself in a note criticising Cohen (*à propos* of the transcendental deduction of the categories):—"If we push too far the emphasis on the *merely transcendental* standpoint, we come, as already hinted, to the tautology that experience is to be explained out of the conditions of possible experience in general. The categories must necessarily be *something more* (noch Etwas) besides being conditions of experience. This with Kant is to be sought in their designation as 'primitive conceptions of pure reason,' while we have here substituted the organisation instead." (*Tr.* II. 230. The italics are in the original.) This search after something more—what he calls in another note the "origin" or "cause" of the *a priori*—stamps Lange as a Transcendentist or Dogmatist. Criticism is just this "tautology". It is an analysis of experience into its constitutive elements, and subsequently, if possible, the presentation of these elements in a complete synthesis. No cause or origin of experience as such can be assigned, and least of all can the cause be found by gathering its constitutive notions together in a focus and hypostatising them as a *prius* in the subject. The search for a cause must, however, of necessity end either in the hypostatisation of experience itself as its own cause, or in the assertion that everything flows from an unknowable x. Lange presents sometimes the one view and sometimes the other; but the question itself is recognised to be essentially unmeaning when the notion of experience is adequately grasped. Lange's statements above are sufficient proof that he had not conceived a standpoint beyond that of Subjective Idealism. It is also plain that, when he is not endeavouring to balance himself at what he considers the non-committal position of Criticism, the organisation or source of the *a priori* habitually appears simply as the mechanism of the senses which transforms the material impact into the knowledge of a world. This is to sink back into the baldest Empiricism and to try to explain experience itself from the action of two things which are nothing save as parts of experience. Matters are not a bit mended by substituting the x and x doctrine, which is expressly given as Kant's at another part of the book,—"the infinitely simple principle," namely, that "our knowledge arises from the reciprocal action of two things" (*Tr.* II. 275). The substitution of these veiled mysteries for the sensuous subject and the material object is simply an etherealised survival of the unphilosophical view of knowledge as sufficiently explained by the action of the external world on the human body. This "infinitely simple principle" is not Kant; it is substantially Prof. Huxley's version of Hume. The relics of this common-sense dualism undeniably linger in Kant's theory, but the

theory, taken as a whole, is entirely inconsistent with such an idea. For the insight into this, however, it is essential that the theory be conceived as a whole. Lange's method of retaining the *Critique of Pure Reason* and throwing everything else aside is rude and uncritical in the extreme; it involves the mutilation even of the theoretical reason. The theory expounded in the three *Critiques* and the subsidiary writings unquestionably formed a unity in its author's mind, and the significance of some of the conceptions introduced into the Pure Reason only appears at a later stage of the philosophy. However little, therefore, the theory may be maintainable in the form in which Kant left it—and this holds of the theoretical results no less than the practical—it is plain that we cannot proceed by an arbitrary selection of parts which are necessarily incomplete in themselves. If we wish to retain it, we must reconstruct the whole system from within in accordance with its fundamental principles. This would carry us, however, tolerably far from Lange.

As regards Lange's transformation of the Kantian Ideas of Reason it must be pointed out that Kant's Ideas are of immanent action upon the development of experience, and that they are the same for all men. In respect of their 'reality,' therefore, they may claim to stand upon the same footing as the Categories; their ideality as 'objects' means, as maintained by Kant, that completed experience is an impossibility to a creature whose essence it is to be limited to a part. Lange's Ideal does not represent, like Kant's, the necessary synthesis of the actual, as it is implied in self-consciousness itself. His organic impulse carries him into 'the intense inane' out of all reference to knowledge; and it contains, therefore, no safeguard against the extreme of subjective caprice. Each man may build what pleases himself most, for he knows that it is all in the air. It ought to be added, however, that Lange replied, when the arbitrariness of his Ideal was urged against him, that he assumed "a necessary course of development in the ideas of humanity. Not any poesy whatever can serve our purpose, but only that which is adapted to our time and to the character of our culture" (*Tr.* III. 187 *note*). This sweeping admission goes far to cut at the root of the purely poetic character of the speculative and religious ideas of mankind. The following considerations may help to elicit the truth that suggested to Lange the inclusion of these synthetic efforts within the realm of poetry. The sciences, it must be considered, deal with the parts of the actual; they isolate different spheres for examination, and, in proportion to the smallness of its bit of experience or to the degree of its abstractness, a science possesses a more or less exhaustive knowledge of the phenomena of which it professes to give an account. Now philosophy sets out to give an account of the whole, to present the whole as a knowable system—as a system, therefore, in which the apparent separation of the knower and his objects is finally resolved. It is evidently absurd to expect that this ultimate synthesis can ever be laid before us for inspection in the same way in which any particular connexion of phenomena—of sense-objects—can be presented and de-

finitely known. We can at most get the schema or outline of an explanation; and philosophy, as reflecting the collective thought of mankind, progressively makes the schema clearer and more adequate. In one sense, then, the ultimate synthesis may be said to be without the pale of science; for the sciences deal with determinate facts, whereas philosophy may be said to be concerned with the supreme hypothesis on which all facts depend. But Lange has passed at a stride from science, as concerned with truth, to poetry, as dealing with the avowedly mythical. The hypothesis, on the contrary, is nothing, if it is not an attempt to reach the truth of the actual. It is the actual world expressed in its last terms—the only conception of the actual which is found to be ultimately not self-contradictory. Only thus is it possible that there should be "a necessary course of development" in the speculative ideas of mankind. As soon as these ideas are robbed of all pretensions to truth it is quite certain that they will be completely discarded, and poetry, too, will lose its ideal reference to the all of things. If Materialism be destined to conquer the real world, then the 'Reich der Schatten' will afford man no compensation.

These considerations have already involved us in the answer to the second question—Is the position tenable in itself, and is it a satisfactory refuge from Materialism? In setting up such a refuge Lange, of course, admits that Materialism is not a sufficient philosophy of human experience. But instead of trying to formulate a fuller philosophy which should embrace mechanism as explaining only one stage of experience, he somewhat naïvely follows the Materialists in their identification of reality with the world of the senses. His "flight" into the Ideal is the result of terror at the consequences of his own admission. Lange states an important truth when he says that "a healthy philosophy cannot too sharply and energetically take Materialism into its protection". There has been too much weakminded, shrieking Idealism. But that is very far from meaning that intelligence is to bind itself by the lowest of its categories. Criticism, properly understood, prescribes no such limitation. It is true Kant's categories in the theoretical reason include no more than the categories of matter; but he expressly exempted the unity of self-consciousness from their sway, and in his Ethics he began to develop the categories of the self-conscious life under the form of a realm of Ends. 'The higher nature in nature,' as Goethe called it, is as much a datum of experience as the mechanism of physics, and the higher or more complex categories which are needed for its explanation have *primâ facie* an equal right to be considered real. To say anything else is to beg the whole question in dispute at the outset. The current tendency to consider a phenomenon explained by so-called resolution into its simplest elements is often very illusory. The simple elements may be there, but the "living bond" that united them too often vanishes in the process of analysis. And after all, *this* was the phenomenon to be explained; the whole is the union of the parts, not the different parts separately. The idea of an organism is a case in point, as seems

to be admitted by Lange himself. "Obviously," he says, "with the union into a whole a new metaphysical principle is introduced, which, by the side of the atoms and void space, appears as a sufficiently striking supplement" (*Tr.* I. 144). The supplement, however, is necessary, or, in other words, we want higher categories here than those of mere mechanism. The relation of the parts of an organism to one another and to the whole cannot be expressed simply in terms of reciprocal causality. To reduce the one to the other just means that we ignore their difference; we quietly drop the distinctive quality of the organism in the downward movement, and as quietly let it glide into our account as we ascend. So the process appears plausible; but difference is difference in spite of all attempt to reduce the world to a dead level of identity, and thought cannot make a simpler notion do duty for a more complex. A philosophy which faces this fact and allows to all the categories their justification will not be afraid of Mechanism. Instead of merging the higher in the lower, like Materialism, such a philosophy will, in a sense, reverse this principle and find the lower forms intelligible only in the light of the highest of all—self-consciousness.

Comment on the merits and defects of the different parts of the *History of Materialism* must be brief after this long criticism of the standpoint. It must be said, however, that, in the historical part, his point of view often makes him unfair to distinctively speculative thinkers. The *History* is, to a certain extent, a general view of human thought; and if it is accepted as such, the estimate of the relative importance of different thinkers would often require to be reversed in the interests of impartial statement. Socrates, Plato and Aristotle come badly off; the chapter in which they are despatched is rambling and inadequate. It is labelled "Reaction," and the chapter on the philosophy of Leibnitz is headed in the same sinister way. Similarly the sections on the post-Kantian metaphysical systems and the sarcastic allusions to the "Begriffsromantik" strewn thickly up and down the book are no more than telling pieces of claptrap and betrayals of ignorance. Lange cannot disabuse himself of the idea that "metaphysic" means the assertion of transcendent causes, which henceforth operate to disturb the calculations of science. Hence he brings ungrounded charges against systems, which, though they did not despair of philosophy, were yet more truly immanent in their synthesis than Lange himself. The "Period of Transition," *i.e.*, the part of the book dealing with the Middle Ages and the Renascence, is sketchy and often irrelevant. In the 17th and 18th centuries he is much more successful. Of the section on Kant there is no need to speak farther. The elaborate criticism of the results of the sciences which follows is probably the most useful part of the book, though from the progressive nature of the subject it will, no doubt, soon become in great part out of date. Lange's criticism is often extremely acute; for example, in the chapter on "Force and Matter," where he demonstrates the complete relativity of these two conceptions. The atoms being reduced to purely hypothetical

points, there is left to science only the statement of relations (Beziehungen). He concludes this triumphant exposition of the antinomies of Materialism by referring the whole question to the distinction of substance and accident in the theory of knowledge. His criticism of Darwinism is interesting as eliciting from him the assertion of a "law of development". He adheres to Nägeli's view that there is in organisms "an innate tendency to progressive development," which is only negatively controlled by the struggle for existence. The struggle sifts out the actual forms from those which are possible according to the law of development. Lange thus maintains "the co-operation of inner formative causes with the conditions of existence". Darwin, he says, is one-sided here in his application of the principle of utility; he "has treated the everywhere *co-operating* cause as though it were the only cause". On the contrary "the principle of utility becomes impotent if a modification of an animal is required of it which is against the law of development". Darwin's doctrine must therefore be completed by the assumption that "the circle of possible variations" is determined by such a law. Applying this to comparative embryology, he points out that morphologists incline to exaggerate the consequences of the external similarity of the ova at an early stage; the most important differences must be already established in the germ to account for the radically different course of subsequent development. Lange explains the law of development as "nothing else than the co-operation conceived as a unity of the universal laws of nature in order to produce the phenomenon of development". The statement is noteworthy, and it is naturally followed by the admission of "a teleology which is not only compatible with Darwinism, but almost identical with it". This, it may be observed, is a departure from the Materialistic doctrine of a purely fortuitous origin and progress of the universe. It implies that the End was in the beginning, and that mechanism functions only as the instrument of such an immanent End. In a later chapter Lange condemns severely the method of phrenology, which in lieu of one soul creates nearly forty. "We must explain the engine from its separate wheels," and not make each separate wheel a complete engine. Here our plain beginning is in the investigation of the conditions of reflex action. The last section of the book, on "Ethical Materialism and Religion," is devoted to the social questions of the present time. Lange combats the notion that the harmony of interests is the natural result of the unimpeded action of a purely egoistic society. His lively sympathy with the lot of the masses leads him here to form semi-socialistic ideals. The large heart of the man appears throughout the section, which is attractively written, though here and there almost gossiping in tone: Ueberweg's likes and dislikes in the matter of hymns, it has been remarked, are scarcely within the scope of a History of Materialism. The last chapter of the book is called "The Standpoint of the Ideal," and in it he recapitulates and elaborates his own remedy for the ills of humanity.

If it were necessary to choose between Lange's original estimate of

his work and some of those since passed by enthusiastic adherents, the former, in my opinion, would come much nearer the truth. Lange aimed at immediate influence, and he would have been contented, he says, had his book been forgotten in five years. The more pretentious form was forced upon him by the reception which his book met with. Even in its new shape, however, it may be doubted whether it will maintain itself permanently. It remains more of a pamphlet than a formal history, and the point of view from which it is undertaken appears to me, moreover, superficial and fallacious. Nevertheless the influence of the book has been great, and certainly not all for evil. Lange is a man whose sympathies are throughout 'on the side of the angels'—a man of warm heart and lofty aspirations. As a thinker, though without the supreme gifts, he is remarkably acute; and he is thoroughly versed in the work and methods of science. His style is clear and trenchant, and invariably interesting. From such a combination of qualities there could not but result a book brimful of instruction and of incitement to thought. The total effect is confusing, but the *History of Materialism* will doubtless continue to be read for a considerable time with a balance of advantage to the readers.[1]

ANDREW SETH.

[1] As regards the way in which the Translator has done his work a single word may be added. Mr. Thomas has been deservedly praised for the high general level of accuracy and vigour which his version presents. But a remnant of unintelligible sentences and inversions of meaning still interrupts the even flow of the book. Probably some of these are due to the press, but in a few cases the German particles seem to have baffled Mr. Thomas. On I. 139, "If we find any magnificence in the Aristotelian teleology, yet we must all the more refuse this character to the uncompromising denial of the idea of design,"—ought to run:—"Though we find a certain magnificence, &c., . . . yet this character belongs just as much to the uncompromising denial," &c. The sentence at the foot of I. 214 is quite unintelligible as it stands. On I. 205 Aristotle's doctrine of the *νοῦς χωριστός* is twice spoken of as the *in*separable reason, the German being "abtrennbar". "Gottesgläubig" (I. 300) should be translated not "Deists" but simply 'believers in God,' the associations of the first term being misleading. "Eingefleischt" (II. 164 and elsewhere) is surely rendered strangely as "incarnate"; 'inveterate' or 'thorough-going' would be better. "Verfechten" (II. 291) is to defend, not to attack. "The wearying struggles for the existence of the soul" (II. 134) ought to be 'disputes about the nature of the soul.'. "Ausgleichung der Schuld im Bewusstsein der Menschheit" (II. 120) is not to be translated "equalisation of faults". The reference is to the cardinal Christian doctrine of the Atonement, and the words mean the cancelling or removal of guilt. I would not have mentioned the slip of "rapidly disappearing" as a translation of "*fast* verschwindende," if it had not occurred in such an important passage as Lange's preface to his second volume in 1875. I observe that Mr. Thomas has translated "transcendent" throughout as "transcendental"; as the two words are quite distinct, and as Lange himself was particularly strict in distinguishing them, this is to be regretted. In a less excellent translation such lapses might have escaped notice; and it is only fair to add that, in a book whose subject-matter is extremely various, Mr. Thomas has almost always rendered the terms and the style of the original in accurate and easy English.

Kantian Ethics and the Ethics of Evolution: A Critical Study. By J. Gould Schurman, M.A., D.Sc., Professor of Logic and Metaphysics in Acadia College, Nova Scotia, and late Hibbert Travelling Scholar. London: Williams & Norgate, 1881. Pp. 103.

This book contains in its first part a criticism of the theory of the Freedom of the Will as developed by Kant and his successors; in the second half there is a discussion of the Kantian ethical system itself in its relation to the doctrine of Freedom, and a criticism of Mr. Spencer's *Data of Ethics*. The criticism both of the theory of the Will and of the ethical theories is very interesting, and, besides being interesting merely as criticism, it leads to a positive result. As regards free-will, the conclusion is that Kant, in his critique of morality, did not succeed in reconciling freedom with his theory of causation; and it is shown historically that his doctrine of noumenal freedom had a tendency to develop into Determinism. After discussing the question of Freedom, Dr. Schurman goes on to the consideration of Kant's conception of the moral law itself; he shows that it is not applicable to actual morality, because it is a purely formal principle and has no content. Then he proceeds to develop out of the ethical system of Aristotle a principle "that differs from the formal law in that it has a content, but agrees with it, in that it is of universal extension". "This is a material principle whose form and content are given in the idea of man as man." "Evolutionistic Hedonism" is then criticised from the point of view arrived at by means of this principle.

The criticism of "The Ethics of Evolution" is for the most part hostile. Dr. Schurman, after showing how Kant's system led to Determinism, adds that we must still accept the doctrine of Freedom though it is inconsistent equally with the theoretical philosophy of Kant and of those who have developed both the empirical and the transcendental side of his philosophy; for it is shown by Kant's analysis of duty to be a necessary assumption in morals. But although the criticism of the ethics of evolution is written from the point of view of Indeterminism, it must be admitted even by evolutionists to be important as a contribution to the discussion of ethical theory. This will be seen when the general argument of Dr. Schurman's book has been given in a little more detail.

The first section is entitled "Intelligible and Empirical Character". Here a summary is given of the results of Kant's critique of knowledge and of his doctrine of the necessity implied in "ought" and its distinction from the necessity we meet with in nature. The world in which the former kind of necessity has place is the noumenal world; that which is subject to the necessity implied in the relation of cause and effect is the phenomenal world. "Man as having an empirical character is determined, as having an intelligible character he is free." But the exact relation between these two characters is far from clear in Kant's account. The best way of bringing out all its implications is to trace its historical development. The result of this mode of studying the theory is that "the Determinism of Schelling and

Schopenhauer is the logical outcome of Kant's doctrine of intelligible and empirical character". In Schelling's doctrine of freedom the thought of Kant has developed almost, if not entirely, into its opposite; and in Schopenhauer's system the development is complete. For the notion of freedom with Schopenhauer is merely this—that each individual remains himself and does not become another, and that his moral consciousness makes him see, whenever he transgresses the moral law, that objectively another action was possible, and would have taken place if he had been another person; it is the being what he is that is inexcusable. Schopenhauer's doctrine of Will is "a one-sided development of the intelligible world in the Kantian system. It lacks the rational element in virtue of which the noumenal character is a law unto itself. . . . But if Schopenhauer's additions to Kant are of a suspicious character, his developments of Kant are essentially logical and consistent. He brought out clearly all that lay in germ in the doctrine of intelligible and empirical character. And, as we have seen, it turns at his touch into a system of Determinism". Thus the distinction of intelligible and empirical character does not succeed in doing what it was intended to do, that is, in reconciling freedom and necessity. But we may regard it as the issue of the weakness and not of the strength of the *Critique;* we may try to find in the immanent principles of the Critical Philosophy a mode of escaping from the contradictions into which Kant himself fell.

This is the aim of the second section ("Freedom of the Will"). Dr. Schurman first notices the position of "the so-called Neo-Kantians, of whom Lange may be taken as the representative". But he declines to follow them in rejecting the practical philosophy as the perishable part of Kant's system. After discussing Kant's analysis of the moral law, he comes to the conclusion that since "Will, for Kant, is nothing more than the correlate on the active side of law on the theoretical side," his doctrine of the autonomy of the Will is correctly interpreted by Hegel's definition of Will as a kind of thinking. Since thought in the Kantian system cannot be peculiar to any individual, it follows that Hegel has drawn for us the consequences of Kant's identification of reason and will in saying that "the spirit has reality, the individuals are its accidents". But the view thus developed causes the categorical imperative to disappear, for human beings "as mere moments and accidents cannot be charged with the fulfilment of an unconditioned duty"; and with the categorical imperative the ground of the Hegelian inference itself disappears.

Kant's doctrine of Will, however, is not consistent. "On the one hand, he pictures freedom as the active self-originating power of reason or will; on the other, as passive subjection to a self-given law." The first view implies the doctrine of a distinction between the phenomenal and the noumenal world. But "there is no ground for separating the phenomenal from the noumenal world when we decline, as the Kantian principle requires, to regard as existent what

can only be described (in Mr. Spencer's language) as unknown and unknowable". The only noumenon Kant was entitled to maintain was "the synthetical unity of apperception," the permanent, "I think". But this is not peculiar to any individual, and, historically, after being universalised by Fichte, it passed into the Absolute of Schelling and Hegel. And Hegel's system (as we have already seen), just as much as empiricism, makes the conception of freedom meaningless for the individual man. Turning to the second view that may be taken of Kant's doctrine of Will, we find that "the law of duty as interpreted by Kant makes no provision for difference of any kind". "His ethical system has two sides, one of which is applicable to pure reason, which is above duty, and the other to material things, which are beneath it. But for man, the only moral being we know, and for whom alone we need a philosophy of ethics, Kant's system has neither application nor validity."

The result of this examination of Kant would seem to be that no philosophical doctrine of free-will is possible. Dr. Schurman, however, attempts to escape from this inference. Freedom, he says, is implied in the relation of "ought" and "can," as set forth in the critical philosophy; it is certainly inconsistent with the phenomenal law of causation: but we must not deny that a thing exists, because we do not see how it is possible; and the law of causation with which freedom is inconsistent is one that cannot be shown to be valid for mind. It is evident that the last argument is the one that is really important in this reasoning. Determinists believe they can explain the moral consciousness consistently with their view of causation, and without trying to get rid of the notion of duty; but if "the category of cause and effect" is not applicable to mind, then of course the problem they set themselves to resolve becomes meaningless. Dr. Schurman's argument against the application of the law of causation to mind is founded on Kant's "Copernican notion". He states it in one place thus:—"If the mind legislate for nature and create from its categories, intuitions and feelings the world we know, is it not evident that the mind itself cannot be conditioned by the conditions it imposes on things?" Now the word "mind" here may be taken in two senses; it may mean the formal element in all knowledge, or it may mean "the empirical consciousness," "the subject-world," as distinguished from "the object-world". Taking it in the first sense, it may be replied that form is conditioned by matter just as matter is conditioned by form, or, as Kant himself says, that the categories are meaningless apart from experience. In experience there is union of matter and form, and the category of cause and effect is one of those forms that are applicable to all experience. If we detach the formal element of experience and imagine it existing separately, then we may, if we like, say that it is unconditioned; but it is shown by Dr. Schurman himself, in his remarks on Hegel's Absolute, that this procedure brings us back to Determinism. Let us now take mind in its other sense, as "the empirical consciousness". If we say that this belongs to the world of things-in-themselves, then,

since the thing-in-itself is, according to this view, knowable, it consists of elements that are subject to relations; hence, we may make the distinction of "form" and "matter" in the case of things-in-themselves just as in the case of phenomena; and, because the phenomenon corresponds to the thing-in-itself, every category that is valid for phenomena must have its analogy in the noumenal world. Thus, in whatever way we prefer to state the law of phenomenal uniformity, or the category of cause and effect, there is (since this law applies to all phenomena without exception) a corresponding law for mind.

The third section of Dr. Schurman's essay ("The Moral Principle") begins with a criticism of the Categorical Imperative. He shows that in ethics Kant did not succeed in reconciling rationalism and empiricism, as he did in his theoretical philosophy. The moral law, according to Kant, "can have regard neither to the ends nor to the consequences of our actions, but only to the rules which precede them, to the form of the will from which they have issued. But as it is no empirical principle it cannot have a content; it is formal, and as such, empty as the Categories or the Intuitions". That is, it cannot, taken by itself, give us any information as to what is, under actually existing circumstances, moral or immoral. And we need not grant that all material principles *as such* are egoistic. "The result, accordingly, is that morality, which we have found inexplicable from the mere form of a universal law, is not incompatible with a principle that differs from the formal law, in that it has a content, but agrees with it, in that it is of universal extension." This principle may be developed out of Aristotle's conception of *εὐδαιμονία*, which may be defined as that mode of consciousness which is desired for its own sake, and is regarded as identical with the absolute good. This is a certain activity of reason by which man is distinguished from other animals. Kant's principle assumes that the individual creates his own morality, while, as a matter of fact, the moral notions of each individual are in part determined by historical conditions. An explanation of this is found in Aristotle, for he shows that the absolute good must be realised objectively, and that, since man is a *Ζῶον πολιτικόν*, its objective realisation can be no other than the State. "In other language, our social institutions are the objective expression of the idea of humanity as it embodies itself in history."

The transition from the third section to the fourth ("Evolutionistic Hedonism") is made by the statement of "a metaphysical assumption" on which Dr. Schurman considers his view of ethics to be based. This assumption is that "duty consists in the realisation of an end or idea for the sake of which alone man exists as moral agent". Thus, in order that ethics may be possible, our conception of the universe must be teleological. "By implication, therefore, we have already rejected an ethical philosophy built on a system of metaphysics directly opposed to the teleological." "Evolutionistic hedonism," as set forth in the *Data of Ethics*, is such a system.

In reply to this, it is open to an "evolutionistic hedonist" to say

that, distinguishing between art (as defined by Mill) and science, he regards ethics as a portion of the art of life or teleology; that this may be opposed to the whole of theoretical philosophy or metaphysics; and that the existence of ethics as a branch of the art of life depending on the selection of one particular ideal end (the welfare of society) from among all possible ends is consistent with any metaphysical assumptions whatever. This reply, however, is not perfectly satisfactory as a mode of dealing with the whole of Dr. Schurman's argument against hedonistic systems. For this argument points to a certain want of completeness in the embodiment, in expositions of the ethics of evolution, of the idea which is arrived at as the result of the preceding discussion of "the moral principle," that is, "the idea of humanity as foundation for morality". But it seems to me that not only can this idea be reconciled with the ethics of evolution, but that it emerges as a necessary consequence of the theory of evolution as applied to ethics, and that it requires this theory for its complete justification. Apart from the theory of evolution, "the idea of humanity" may be arrived at as a consequence of the application of Hegel's doctrine of a universal consciousness to ethics. But the theory of evolution enables us to show the meaning of this doctrine by a psychological deduction which is wanting in Hegel's system, just as it has already explained the meaning of Kant's doctrine that space and time are *a priori* forms of intuition. It justifies the Hegelian idea as a formula of our actual consciousness by developing the conception of "the social organism," by showing that one of the consequences of this conception is that "society is older than man," that each individual has certain relations in the structure of his mind which depend on his forming part of society, and that these relations are more fundamental than his character as an individual. This conception is implied in the *Data of Ethics*, though it is associated there with an "individualism" commented on by Dr. Schurman, which may be compared with the individualism of Kant: but its psychological consequences have been developed by more than one writer, and its importance in ethics was seen by Clifford, for example.

According to the view that is a consequence of this sociological idea, ethics becomes a more strictly limited science than it is generally conceived as being. It is, as Dr. Schurman says, the science of our actual morality, and not of that which is to be our morality at some future time. But, as he himself admits, there is a possible science of which it is the aim "to deduce from the laws of life and the conditions of existence what kinds of action necessarily tend to produce happiness and what kinds to produce unhappiness"; and we have need of such a science. For morality differs in different ages and nations; and actual moral ideals are not perfectly uniform. It is important, then, that we should know in what direction we ought to modify them. And even if we do not call discussions of the changes it is desirable to make in our modes of looking at actions a part of ethics, still it is obvious that they have close relations with ethical

science. Thus some of Dr. Schurman's objections to parts of the *Data of Ethics* are seen to be objections to the use of a particular terminology. Their apparent strength as arguments against hedonism depends on the fact that we cannot help looking on our actual morality as absolute, so long as we remain within the sphere of ethics in its limited sense. But if we regard ethics as a definitely limited science, with a postulate of its own, it must be thought of as subordinated to a science of ends in general. Now, when we reflect on ends in general in a self-conscious manner, are we not compelled to adopt the hedonistic test in some form or other as the final test?

T. WHITTAKER.

De la Solidarité morale. Essai de Psychologie appliquée. Par HENRI MARION, Professeur de Philosophie au Lycée Henri IV. Paris: Germer Baillière, 1880. Pp. 336.

The first thought of a reader fairly well acquainted with recent ethical writings of the utilitarian and evolutionist schools who takes up M. Marion's work may perhaps be that it contains but little that is actually new. His second thought, if he follows out the author's design to the end, will be that just in this lie the merit and significance of the book. M. Marion's aim has been to gather up, to organise, and to exhibit in a manner fitted to call attention to their practical importance, an order of moral facts and conditions of moral development which, as matters of fact, are now substantially undisputed by all, or nearly all, persons who reflect on such things. His title is an exceedingly difficult one to translate in English; and indeed it carries more meaning than belongs to the French word *solidarité* in its common uses. "Morality as a function of organic conditions" is the nearest approximation I can think of to an English equivalent for the idea which M. Marion, as we may gather from his Introduction, intends to convey. Nor will this be enough unless we remember that the conditions in question are not merely those of the individual whose moral qualities are considered, but those of the society in which he lives, by which his ways and thoughts are largely moulded, and in whose organism he is an element. The following passage from the Introduction defines and sums up the purpose of the book:—

"What I mean by *solidarité morale* is the sum of the conditions which, together with the measure of freedom we have, go to make us, as moral beings, such as we are. In the case of each one of us there is connexion between all points at a given moment and continuity between different times. What we are now is in great measure the result of what we were yesterday, and more or less determines what we are to be and to do to-morrow. Nor is this all; however much our personality is separate and self-contained, it cannot escape the action of its environment. The moral organism called character is, like the organism proper, in constant communication with the world surrounding it, and there is an unceasing exchange between them. Natural laws, again, govern the mutual corruption or improvement of men formed into communities. The men of

each generation depend on and are bound for each other, and for successive generations the like relation holds. . . . Such is the universal law of moral phenomena. . . . The study of this is the study of the conditions of human perfection, the search for the causes of moral growth or degradation in individuals or societies."

M. Marion makes, as implied in this passage, a certain reservation in favour of free-will. This is perhaps to be regretted, not because M. Marion's opinion is illegitimate or unreasonable in itself, but because it springs from the assumption that complete philosophical determinism is inconsistent with a practicable ethical system—an assumption which M. Marion seems to think manifestly inevitable. It appears to me that, in the first place, freedom as maintained by him is consistent with the determinism of the best modern writers on that side, Mr. Shadworth Hodgson for example. But, further, it appears very desirable that the data of ethics should be disengaged as much as possible from metaphysical questions. And this applies emphatically to the free-will controversy. Nobody denies our empirical freedom, the freedom to which Dr. Johnson bore witness in his sturdy dictum. Within certain limits man is free as against the external world, and amenable to motives. The range of practical morality is that within which deliberation between motives is possible. This also is the measure of responsibility, with the saving that an agent cannot escape blame if he has become, chronically or for the moment, incapable of deliberation by his own fault. Whether the outcome of such deliberation is a function of the agent's character, or of his character and a transcendent something else, is a curious problem enough, and might be of some practical importance if we were trying to construct an absolute scale of individual merit. But from the practical and social point of view it seems immaterial. Nobody denies that character counts for much, and is itself to some extent moulded by circumstances. The practical task of a community bent on righteousness is to work for the production of the best type of character directly through education, and indirectly through circumstances. We know that such work may be and has been successful to an extent that makes it amply worth undertaking. So much being known, we may leave aside for this purpose the supposed presence of an irreducible element, giving sometimes better and sometimes worse results than would be given by the calculable conditions. It is certain that on the average the main lines of men's life are settled for them rather than by them. Further on M. Marion compares the course of life to that of a railway train. The speed is under control, but the general direction is not. At certain critical points there is a choice, as at a railway junction, between two or more diverging routes; M. Marion supposes, to make the analogy closer, that the locomotive is rational and can work the points for itself. But how often do we not rely on an external pointsman—it may be a parent, a friend, a teacher, or a spiritual director—even at these junctures? And how often do we not simply take it on trust from him that he knows the line? Few young men can make their choice

of a profession with anything like adequate knowledge, even when the choice is theirs at all. More shortly, the moral judgments of society deal, generally speaking, not with motives but with acts, as M. Marion himself properly notes at the outset. That is, they leave out of consideration the only class of questions for which one's metaphysical view of free-will is ethically relevant.

The main exposition of the book is not of the kind which an epitome can do justice to. For the substance and details of its matter have nothing specially new in them, and its strength is in the cumulative effect produced by their arrangement as a whole. With regard to the formation of individual character M. Marion deals with such points as heredity, early education, and the reaction of intellectual on moral qualities. The importance of habit is dwelt upon, and it is well observed that habit makes itself felt even when we are most deliberate and most endeavour to be impartial with ourselves. An established laxity of thought or practice will disguise itself as a reason, or suggest sophistical excuses, which the agent who yields to the temptation may finally come to believe in. On the other hand, a liberal culture of the intellect has a direct moral value in enabling us to take a larger and a juster view of the courses of action open to us, and the reasons proper to be weighed for and against each. But the right formation and direction of habits is more important still; for the average man is neither very weak nor very firm, neither critically minded nor much attached to dogmas, not given to strict moral analysis, but wishing on the whole to do right, and desirous of having a plausible reason for what he does. He seeks his guidance mainly in example and precedent, and their authority satisfies his conscience. But the power of habit is not confined to particular classes of actions. Moral self-control, aided by the self-approval which is its immediate result, itself becomes a habit if it is practised with success, especially at the critical stages of life. The character is disciplined for future conflicts, and the conflict when it comes is easier. "Il en est des jeunes volontés comme des jeunes troupes, qui deviennent solides au feu pour quelque affaire heureuse où elles ont appris à se prendre en estime. L'habitude d'être content de soi est une grande force; elle nous rend répugnante et presque impossible la seule pensée de certaines chutes."

The moral influences attributable to distinctly social conditions are more systematically treated, and M. Marion has put his chief strength into this part of the book. The more marked kinds of social influence on morality are distributed under the heads of sympathy, imitation, contagion, opinion, and custom. This is of course meant to be a practical, not a strictly psychological arrangement, as the leading principles of sympathy and imitation run all through. Among the social passions derived from sympathy admiration is discussed, and M. Marion has some good remarks on its general tendency. He points out that its influence will be good or bad according to the state of public opinion in the particular society; but that, on the whole, it is more likely to be good than not. For men's professed standard of life, by

which they judge their neighbours, is almost always better than their actual conduct; and even exaggerated admiration, if it is in the right direction, may do good by creating for its object a reputation to which he is, as it were, bound to live up. Under the head of moral contagion M. Marion very properly shows that good example is catching as well as bad, and that its effects in this way are less noticed only because they are not accompanied with startling incidents, and are regarded as part of the normal course of life. The value of usage as the exponent and guardian of social morality is perhaps a little underrated by M. Marion. He says that a fixed rule, if it prevents ordinary men from falling below a certain average standard, tends on the other hand to discourage extraordinary men from rising above it—to repress moral genius, in short. No doubt there is some truth in this; but M. Marion seems to overlook the plasticity of usage which has no formal and authentic organ. Moral rules are not defined in the same way as legal rules, or customs capable of being legally enforced. In societies that have once escaped the risk of arrested development—a risk which morality has to take in common with all other social institutions—they have room to grow, and they do grow. Extraordinary virtue begets admiration, sympathy, and imitation, and sooner or later raises the general standard. "The heroic that seemed too hard" becomes a counsel of perfection, and at last a part of common duty. Prejudices and superstitions foreign to the proper matter of morality may indeed entwine themselves in the moral structure of a community, and be a real hindrance to development in some directions. Probably no society is free from such. We know to our cost how deeply the Puritan theory of Sunday—a theory of modern origin, without any kind of solid ground in reason, history, or authority—has rooted itself in the moral sense of a large number of excellent persons in Great Britain. But such examples only show that moral usage and the authority of custom may be partially perverted. A society in which they were wholly or mainly perverse could not exist.

The effect of high social organisation as such, improved communications, prompter execution of the laws, increased mechanical resources, and the like, resembles that of usage in having no distinct moral character in itself. Such things lead, on the face of them, simply to an extension and quickening of social action on the individual. This "surcroît de solidarité morale" may, so far, be for the better or for the worse. Closer attention, however, shows that it is on the whole for the better. The forms of social organisation are the Family, the State, and the Church. M. Marion has something to say upon the moral aspects of each of these. For the influence of free political institutions on moral character he adopts the opinion of J. S. Mill, from whose *Representative Government* he quotes at considerable length. Established religions are considered as useful guardians of established morality, though not tending to improvement. M. Marion seems rather to overlook that morality is not the chief object of archaic religions, if an object at all: and it is a difficult and delicate

matter to strike the balance of gain and loss to positive morality from association with religious sanctions and the fixity of religious ideas.

In conclusion, M. Marion insists on the importance of each generation realising the bonds by which it is linked to the past and the future. He justly hopes that increased carefulness and seriousness of living may come of men's often thinking that their children will not only be better off, but will be better men, through their good works, and that on the other hand even those vices which are commonly excused as "hurting nobody but oneself" are fruitful of evil to coming generations. With equal justice M. Marion disregards any danger that may be alleged of the sense of dependence on past history and present circumstances begetting a reckless fatalism. Ill-disposed people will never be at a loss for an excuse, and it is absurd to be afraid of giving them one more. As to the general outlook, M. Marion does not embrace the complacent optimism which looks on the progress of society as a thing assured and safely left to take care of itself—the doctrine of "Progrès quand même et quoi que l'on fasse". He thinks improvement will not fall into our mouths, but, equally rejecting pessimism, he thinks it is to be attained by working for it. His practical creed is "an active and militant optimism, eager in will toward the better part and obstinate in belief that such a will is never thrown away". An excellent suggestion which M. Marion makes near the end of his book, and which is easy to act upon, is that parents should keep a family register in which the principal events of each child's life, moral and physical, should be noted. The old-fashioned English tradition of the family Bible is a sort of approach to the general idea, though a meagre one; and after a few generations the history of almost any family, if noted by faithful and tolerably competent observers, would be of no small psychological value. Mr. Galton, if I remember right, has somewhere made a very similar proposal.

F. Pollock.

VII.—NEW BOOKS.

[*These Notes do not exclude, when they are not intentionally preliminary to, Critical Notices later on.*]

Lectures on the Origin and Growth of Religion as illustrated by some points in the History of Indian Buddhism. By T. W. Rhys Davids. ("The Hibbert Lectures," 1881.) London: Williams & Norgate, 1881. Pp. 262.

As the title-page indicates, Mr. Rhys Davids has sought to throw light on Religion generally. With this view, he has chosen the leading features and central facts of Buddhism, especially in its early form. The exposition is not burdened with details, but clearly indicates the fountains of emotion and thought whence the system issued fluent. The process of its after-crystallisation is also put

before the reader in distinct and impressive outline. The author's reflections on the story take the form of suggestions for comparative studies. In Lect. I., Buddhism is exhibited as a comparatively modern phase of religion, the reactionary outcome of an aged and effete animism and the polytheism that emerged from it by natural selection and promotion of the fittest "ghosts". When the transmigration-theory had engendered "a vague feeling of helplessness and hopelessness," Gotama swept it away and with it the whole doctrine of souls, including pantheistic monotheism, its highest and last development. Mr. Davids signalises this as an absolutely new departure, and the very pith of Buddhism. But Gotama's retention of a kind of transmigration, namely, the transmission of Karma, apparently in order to appease the sense of injustice excited by the sight of the inequalities of life, the author thinks a fatal mistake and main cause of "the practical failure" of his religion, as Christianity and other religions have failed to come up to the expectations of their founders by putting the new wine into old bottles. In Lect. III., Mr. Davids insists on his view of Karma as the aggregate or resultant of the acts of a series of lives, *making identical* by its continuous self-sameness the individual links in each particular chain. It is the "craving thirst" for further life in the creature flickering out, that brings its accumulated Karma to a focus in the birth of a new individual. The lecturer does not make it very plain, what would otherwise become of the Karma. Would it simply disintegrate and disperse harmlessly? Did Gotama contemplate the destruction of Karma, or only of its extrinsic principle of individuation? However this may be, Nirvâṇa or restful blessedness, the state of the Arahat or perfect man, effects the latter; but Mr. Davids makes a point of showing that as involving the absence of "craving thirst," it does so *merely by the way*. In this connexion, he brings to the front and lays stress on his view of Nirvâṇa, as salvation here and now, its own reward and end, and neither the annihilation of life or of soul or of desire, unless base. He compares it to the kingdom of heaven within us and the peace that passeth understanding of the New Testament. It is not, *intentionally*, even the altruistic prevention of a new person falling heir to Karma. Mr. Davids does not find that it occurred to early Buddhists or Christians to inculcate duties to posterity. He shows that Arahatship is to be attained by "insight," which belongs to the childlike and poor in spirit, and resembles St. Paul's "justifying faith".

The lecture on Gotama's "order" or society is an eloquent and sympathetic account of the rise of that passion for renunciation and abandonment of the world, which was reinforced by devout and ardent attachment to the master. The two lectures on the Canon and the later forms of Buddhism are not less interesting, the latter containing reflections on the parallel between Roman Catholicism and Tibetan-Lāmaism. The lecture on the lives of Buddha teaches that "the Cakka-vatti Buddha was to the early Buddhists what the Messiah Logos was to the early Christians". Cakka-vatti was the pre-Buddhist ideal king of righteousness; Buddha, the ideal perfectly wise man, or

personification of wisdom. These ideals determined the opinions of the disciples as to the person of the Master. So Buddhism may help the understanding of Christian origins, as the Vedas illustrate Classical Mythology. The inculcation of such methods and principles gives this book its greatest value, and it will be esteemed as a discipline even more than as a store of information. [J. B.-G.]

The Religions of India. By A. BARTH, Member of the Asiatic Society of Paris. ("Trübner's Oriental Series.") London: Trübner, 1882. Pp. xxiv., 309.

In this expansion of a sketch that appeared in 1879 in the *Encyclopédie des Sciences Religieuses*, M. Barth gives a summary account of the development of the present neo-Brahmanic Hindû cults from the Vedic religion and early Brahmanism, interpolating briefer notices of Buddhism and Jainism, as reactionary episodes in the evolution, yet showing how they modified the later currents of the main stream. M. Barth regards the Vedic literature as select, esoteric and sacerdotal, rather than popular and naïve. Alongside of it, there always were the superstitions it had eliminated, and inchoate religions, germs of the Çiva and Vishnû cults. He finds a clue to the labyrinth he has to traverse in the frequently recurring words—"The gods are only a single being under different names;" holding that the inner history of India is one long-protracted struggle to realise that formula, without success. The passage to the older Brahmanism was due, he considers, to the obsolescence of the Vedic language with the ossification of the faith for result,—the establishment of a final canon and deification of rite and dogma. Accounting for the appearance of Buddhism, he makes a pregnant remark: "There is always a metaphysical shipwreck connected with the rise of such great sorrows" as pessimism. So the Vedantist absolutism collapsing, Buddhism issued. It had a career, he thinks, because it bore along with its negations the ineffaceable image of the Master, as ideal object of devotion. Its ascendancy he mainly attributes to its cosmopolitan and yet entirely unworldly character; its fall, to its loss of the monopoly of Bhakti, or devout loving confidence and personal attachment, on the rise of neo-Brahmanism with its concrete god-men like Krishṇa and Râma. The Avatâras of Vishnû supplied this race. In Kṛishṇa the anthropomorphism was perfected. His subjective correlate is an intenser Bhakti. M. Barth argues that it is most improbable that Bhakti and Kṛishṇa were borrowed. The coincidences in the Indian and Syrian biographies correspond with the most obviously legendary elements in the life of Christ, and are found in the lives of other incarnations. A chapter on reforming sects contains the unique story of how a sect became the Sikh nation. A review of the manifold present aspects and quite uncertain prospects of Religion in India, concludes a work that is no mere compilation. It includes many passages worthy to rank as contributions to a philosophy of history.

[J. B.-G.]

A Manual of Hindu Pantheism; The *Vedântasâra*, translated with copious Annotations by Major JACOB. ("Trübner's Oriental Series.") London, Trübner, 1881. Pp. 129.

This is a bird's-eye view of that explanation of the universe which has contended with the rationale of Kapila for the mastery. The Vedânta, unlike the dualist Sânkhya, aims at Advaita, a monist representation: whether, in the doctrine of Vikâra, it leaves the world of consciousness and its objects a kind of attenuated reality as emanation of Brahma; or, as in this primer of the more recent and presently dominant form, the doctrine of Vivartta, it dissipates the last residue of reality into Mâyâ, a sort of magical illusory trick, which Brahma (the absolute Indifference of Schelling or Parmenidean Being) plays with himself upon himself, as when a rope simulates a snake. The end of the Vedânta is a practical one, the attainment of happiness, only conceivable as emancipation from life with the griefs and pains, that are of its essence. The commentary explains that "Vedânta" means "the conclusion of the Veda," and thus is a church-philosophy, finding its analogue in Scholasticism, as the outcome of an attempt to complete the circle of speculation within inviolable limits prescribed by authority. It is, therefore, an orthodox rationalism, which exalts inwardness in the form of mystic contemplation. The *Vedântasâra* gives as the burden of the Vedânta, these two sentences: "The knower of the Self passes beyond sorrow," and "He who knows Brahma becomes Brahma". "*Already free*, he is freed," as "one under the delusion that the garland round his ankle is a snake; when told it is not a snake, the snake is removed, although it was already removed." Major Jacob has succeeded in providing "for missionaries and others with little leisure for original research, an accurate summary of the doctrines of the Vedânta." [J. B.-G.]

The Mind of Mencius. By the Rev. E. FABER, Rhenish Mission Society. Translated from the German, with Notes and Emendations by the Rev. ARTHUR B. HUTCHINSON, Church Missionary Society, Hong-Kong. ("Trübner's Oriental Series.") London: Trübner, 1882. Pp. 293.

The author, who has already produced *A Systematic Digest of the Doctrines of Confucius*, here presents a similar account of the doctrines of Mencius (372-289 B.C.), in pursuance of a general plan he has formed to go through the most important Chinese Classics till about 250 B.C. Mencius, living in the century after his master, is the greatest name in the Confucian School. The author, who describes his Digest in a second title as "Political Economy founded upon Moral Philosophy," thus farther expands the description:—

"Mencius is, like his master Confucius, simply a teacher of political economy. To him the State is the sum of all human endeavours, natural and civilised, working together as a united organisation. Through his direct opposition to the socialist, and in lesser degree to the sensationalist, Mencius saw himself necessitated to base his political economy upon ethics, and his ethics upon the doctrine of man's nature. The ethical problem is

for him the utmost development of all the good elements of man's nature. The problem of the organisation of the State is, Under what conditions can the highest aim be set before it? and then that the government shall consciously endeavour to bring about those conditions."

The Brain and its Functions. By J. Luys, Physician to the *Hospice de la Salpetrière.* With Illustrations. ("International Scientific Series.") London: Kegan Paul, 1881. Pp. 327.

The author's name has long been identified with a method of brain-investigation, consisting in the microscopic examination of photographic impressions of regularly stratified sections of the cerebral tissue; and in this book he seeks to give the main results of his anatomical inquiry, as a basis first for physiological deductions as to the working of the brain, and next for psychological interpretation with the help of his professional experience as an alienist. He considers himself able to make out, anatomically, that, in the case of three senses at least—sight, touch, hearing—and, more doubtfully, of smell, the ascending nerve-tracks are brought together into distinct ganglia in the thalami before passing on their way to specially localised stations in the outermost layer of the cortex; again that, while the cells of the cortex increase regularly in size in the inner strata, it is from the innermost largest ones that the motor fibres of the system start and pass outwards, after being first brought together into definite ganglionic knots in the corpora striata, corresponding with those of the thalami. The middle-layers, connecting the others, are, he *supposes*, a region in which the impressions received become variously elaborated before they pass out again in the form of motor stimuli. In the nerve-cell the author distinguishes three main properties which he names Sensibility, Organic Phosphorescence ("the property of storing up in itself and retaining the sensorial vibrations which have previously excited it, as we see in the inorganic world phosphorescent bodies preserve for a longer or shorter period traces of the luminous vibrations which have impinged upon them"), and Automatism (power of reacting upon impressions). The exposition of these properties involves already a consideration of certain mental phenomena, especially, under "organic phosphorescence," the facts of Memory; but it is in the final section, dealing with the actual processes that go on in the brain as compounded of nerve-elements with such properties, that the general psychological interpretation is forthcoming. Distinguishing three stages in the cerebral process—(1) incidence, (2) propagation, (3) emission, the author connects with each respectively (1) attention, the notion of personality, conscious perception; (2) "dissemination of sensorial impressions in the plexuses of the psycho-intellectual sphere (genesis of ideas)," "evolution and transformation of sensorial impressions" (including facts of emotion and desire), judgment; (3) voluntary motion. The conception underlying the whole treatment is—that cerebral process is essentially sensori-motor, and that all the facts of mental life are to be understood as the subjective phases of complex sensori-motor events wholly or partially transacted. Credit is due to the author for the consistency

with which he seeks to carry through the conception as he understands it, and it is doing him bare justice to say that his practical experience suggests to him many true and interesting psychological observations by the way. Yet the book as a whole is open to much exception. The anatomy is a curious mixture of over-definiteness and utter vagueness. The fancifulness of the notion of "organic phosphorescence" is not redeemed by increase of insight into the actual details of memory. And everywhere the exposition is marred by the most gratuitous confusion of the physical and the mental. Words of purely subjective import—not only the word "sensibility" which physiologists have long sought to appropriate—are constantly used by the author in such a way as to leave it uncertain whether his assertions are about brain or mind, or rather to make it certain that he has taken no sufficient pains to distinguish between them in any clear sense. To take but one example: How is the assertion (p. 58) to be understood, that impressions from without, on being purified and transfigured by the elements of the thalami, are launched towards the cortex in an "intellectualised" form? No light is thrown upon this remarkable transformation even when it is added immediately afterwards that the elements of the corpora striata, in turn, "materialise" the stimuli sent down to them from above. Altogether, some nicer discrimination is wanted than anywhere throughout the work we have evidence of before it can be allowed that the study of mind henceforth "should properly belong to the physiological physician and to him alone".

Suicide: An Essay in Comparative Moral Statistics. By HENRY MORSELLI, M.D., Professor of Psychological Medicine in Royal University, Turin, &c. ("International Scientific Series.") London: Kegan Paul, 1881. Pp. 388, with 4 Tables.

The author of this work (who just now also comes forward as "Director"-in-chief of the new *Rivista di Filosofia Scientifica*—see, below, p. 159) has expressly revised and abridged the Italian original for the English version. He offers it as "an essay in the synthetic and positive direction which now, through the efforts of the great contemporary English thinkers, rules the psychological and social sciences". In Part I., "Analysis," after proving the increase of suicide during this century he considers, in succession, the various influences affecting the number of voluntary deaths—Cosmico-natural, Ethnological, Social, Individual Biological (Sex, Age, &c.), Individual Psychological; and shows how they affect also the methods and places of suicide. In Part II., "Synthesis" (pp. 355-74), he briefly maintains that "Suicide is an effect of the struggle for existence and of human selection, which works according to the laws of evolution among civilised people," and, in conclusion, urges that the only way to cure the evil is "to develop in man the power of well-ordering sentiments and ideas by which to reach a certain aim in life—in short, to give force and energy to the moral character".

Text-Book to Kant. The Critique of Pure Reason: Æsthetic, Categories, Schematism, Translation, Reproduction, Commentary, Index. With Biographical Sketch. By JAMES HUTCHISON STIRLING, LL.D., Foreign Member of the Philosophical Society of Berlin. Edinburgh: Oliver & Boyd; London: Simpkin, Marshall, 1881. Pp. 548.

It is hardly necessary to go beyond the very particular enumeration of topics and divisions on the title-page for a *first* indication of the scope of this work; detailed notice and criticism are reserved till another time. According to the Preface, the translation stops short with the "Schematism," because the exposition carried so far contains "all that properly and peculiarly is *constitutive* either *of* or *with* Kant (anything else, except the categorical imperative, being either only negative and *regulative*, or simply a corollary)". As to other features of the book:—

"It has been the aim of the commentary to leave as few obstacles as possible between the reader and a full understanding of the *transcendental system* of Kant. . . . In the Index there has been a very special endeavour to provide the reader with a complete referential guide. The Reproduction, that, by way of introduction, precedes the translation, will be found to cover the whole ground occupied by the rest of the book. Executed in 1862, it is all that exists of the 'Exposition of Kant,' which is several times mentioned in the *Secret of Hegel* as prior to that work."

The Problem of Philosophy at the Present Time: An Introductory Address delivered to the Philosophical Society of the University of Edinburgh. (Published by Request.) By EDWARD CAIRD, LL.D., Professor of Moral Philosophy in the University of Glasgow. Glasgow: Maclehose, 1881. Pp. 43.

"The task of philosophy is to rise to such a general view of things as shall reconcile us, or enable us to reconcile ourselves, to the world and to ourselves"; not by any "subjective synthesis" (such as Comte or, in ancient times, Stoics, Epicureans, &c., conceived of) but by an "objective" or "absolute" synthesis which establishes "the indivisible unity of the intelligence and the intelligible world". It is the "re-thinking of a secular and religious consciousness which has been developed, in the main, independently of philosophy". "The task has become, if in some respects a harder, yet in other respects a more hopeful one in modern times" than when Plato and Aristotle, in the circumstances of Greek religion and life, attempted it. Philosophy, since Kant, may "begin its work by a vindication of the religious consciousness. . . . Nor can it fail to discover that the idea on which the higher life of man is founded—the idea of the unity of man as spiritual with an absolute spirit—has in Christianity been brought to light and made in a manner apprehensible by all. Whatever, therefore, may be the change of form to which this idea may have to submit in being applied to our ever-widening knowledge of nature and man . . . we have good reason to be confident that we have in it a principle of universal synthesis which is adequate to the task." Only, for this, Philosophy must now, as never before "emerge from the region of abstract principles and show that it can deal with the manifold results of empirical science, giving to each of them its proper place and value".

Social History of the Races of Mankind. Fifth Division: Aramaeans. By A. FEATHERMAN. London: Trübner, 1881. Pp. xvii., 664.

This is a somewhat minutely-detailed account of the social condition, manners and customs of the various branches—thirty to forty—into which the author would divide the Aramaean or Semitic stock, beginning with the ancient Phoenicians, Assyrians, &c., and ending with the Sahara Arabs of the present day. The authorities upon which the exposition is in each case based are regularly given at the end of each section, showing the precise extent of the author's inquiry. The work appears to be done with care and discrimination, and the exposition cannot be called other than good, each paragraph containing its bundle of related facts plainly and simply expressed: only, the principles upon which they are ordered might have been made somewhat more obvious. Five other divisions of the work (upon which the author has been already engaged ten years) remain to be published. He distinguishes six stocks in all—Nigritians, Melanesians, Maranonians, Turanians, Aramaeans, Iranians; and the reasons he has for beginning with the Aramaeans are unconnected with the order of natural development, which is rather that just given. The different stocks are supposed by him to have arisen "under varying conditions in different countries and at different geological periods," from a multitude of pairs in each case. By implication, he seems to deny the existence of any earlier stocks of men.

Descartes. Par LOUIS LIARD, Recteur de l' Académie de Caen. ("Bibliothèque de Philosophie Contemporaine.") Paris: Germer Baillière, 1882. Pp. 300.

The author confines himself here to an exposition of Descartes' doctrine, seeking, however, on the one hand, to throw light upon it from the science and philosophy of the present day, and, on the other, to understand how the ideas of Descartes were the germs from which modern science and philosophy have been developed. The exposition falls into three parts—"Method" (pp. 3-34); "Science" (pp. 35-140); "Metaphysic" (pp. 141-295).

Thierri Tiedemann et la Science de l'Enfant. Mes deux Chats: Fragment de Psychologie comparée. Par BERNARD PEREZ. Paris: Germer Baillière, 1881. Pp. 79.

The author, whose special studies in the psychology of children have been repeatedly noticed in MIND, here presents the more important points in a little-known memoir by Tiedemann which he has previously referred to as the first piece of real scientific observation on a child's mental development; supplementing them by comparison with the results obtained by Mr. Darwin and in the last few years by M. Taine and others. The second half of the little book is taken up with the record by himself of the earliest doings of two male kittens produced at one birth.

Teoria Fisiologica della Percezione. Introduzione allo Studio della Psicologia del Prof. GIUSEPPE SERGI, nella Università di Bologna. ("Biblioteca Scientifica Internazionale"). Milano: Dumolard, 1881. Pp. 330.

This is a work in the "International Scientific Series" which, if translated by a really competent hand, might go far to fill a blank that is still left in English psychological literature. It presents with some completeness the main results of the later physio-psychological inquiry, German or other, so far as bearing on the scientific question of perception. The author, however, is not concerned with mere reproduction, but seeks to work up the facts into a more exact and sufficient theory of perception than has yet been devised. To prepare the way for this he first criticises the chief English and German theories of recent years, and it is then, as he develops his own theory, that he works in the accepted experimental results. His main object is to show how the complex psychological fact of perception—so much more than the mere fact of sensation which it includes—is physiologically conditioned, as conditioned it must be in all its stages to the last. The plain facts of the case, according to him, are not met unless it is assumed that, when the brain is stimulated from a peripheral sense-organ in the specially localised fashion that first distinguishes perception from sensation, a nerve-current is sent back upon the same lines to the peripheral origin of the stimulus. This "perceptive wave," as he calls it, is the physical circumstance that more immediately determines the fact of conscious localisation at or projection beyond the periphery of the body, which is the salient feature in objective perception. The author brings also into full prominence the function of movement in perception, and rightly formulates [after Horwicz and others] the general assertion that sense-organs are of account for perception according as they have a proper and independent movement. Prof. Sergi's study deserves attention. It may be noted that he is one of those who are joined in the "direction" of the new *Rivista di Filosofia Scientifica*, which proves how well Italy is now to the front in the scientific investigation of mind.

Della Interpretazione Panteistica di Platone. Di ALESSANDRO CHIAPPELLI, già Alunno del R. Instituto di Studi Superiori e di Perfezionamento. Firenze: Le Monnier, 1881. Pp. 284.

An elaborate thesis written in support of the newer view of Plato's doctrine put forward by Prof. Teichmüller (of Dorpat) against the traditional conception of Zeller and others.

Grundzüge der Psychologie. Dictate aus den Vorlesungen von HERMANN LOTZE. Leipzig: Hirzel, 1881. Pp. 100.

In lecturing to students, Lotze followed the traditional Göttingen custom of dictating summary statements of results in the course of freer exposition; and we have here in print the dictated paragraphs of his lectures on Psychology as they were finally delivered in Göttingen

last winter, and were again in process of delivery at Berlin when death snatched him away, at midsummer, from his new field of labour. The impression was in the first instance designed for the benefit of the large class of students deprived in mid-course of the instruction they expected, but fortunately is also offered to the public. The paragraphs form a continuous exposition, and, compendious though they are, give a better idea of Lotze's whole psychological position than can otherwise now be easily had. Besides being more limited in its reference, the *Medicinische Psychologie* of 1852 is out of print.[1] The exposition is pretty equally divided between a view "of the several elements of the inner life," and a discussion "of the soul," this latter being otherwise designated as "Theoretic Psychology". A preliminary division of all Psychology into (1) Descriptive or Empirical, (2) Explanatory, Mechanical, or Metaphysical, (3) Ideal or Speculative—is not adhered to in the actual course. While Speculative Psychology, which seeks for "the rational meaning" of mental life is left altogether aside as not admitting of scientific treatment, the other two lines of consideration are not held strictly apart. The description of the mental "elements," in the first section, has mixed up with it a considerable modicum of the kind of metaphysical explanation that forms the staple of the "Theoretic Psychology". In the sketch, as it is now printed, Lotze is seen, to the end of his life, eager to incorporate the latest results of positive scientific research, as appears at various points of the account with which he begins of the "simple sensations". His main interest, however, all through, is to suggest or urge, in accordance with the spirit of his general philosophical works (*Mikrokosmus* and others), that by no kind of physical hypotheses or analogies can the plain facts of "the inner life" be accounted for. How definite metaphysical assumptions, whether as to the nature of the soul or the nature of things, may be used in a serious sense to explain the facts of mind, cannot be better studied than in these *Grundzüge*. An appendix at the close, in 8 pp., gives a very careful bibliography of all Lotze's works and occasional writings, drawn up by Prof. E. Rehnisch of Göttingen.

Einfluss der englischen Philosophen seit Bacon auf die deutsche Philosophie des 18. Jahrhunderts. Von der Kön. Preuss. Akademie der Wissenschaften mit einem Preise ausgezeichnete Untersuchung von G. Zart, Dr. phil., Gymnasiallehrer. Berlin: Dümmler, 1881. Pp. 240.

This prize-essay gives a straightforward and sufficiently detailed account of the influence exerted by English thinkers upon all the German philosophers of any note from Leibnitz to Kant (not including general critics like Lessing and Herder). Locke's influence is found to be far the most powerful and wide-reaching, till Hume begins to

[1] Since 1876, however, Book I., in a form revised by Lotze himself, may be had in French, translated by A. Penjon, under the title *Principes generaux de Psychologie physiologique* (Germer Baillière).

rival him as time goes on. Bacon, Hobbes, Home (Lord Kames), Hutcheson, Tucker (quoted always under his pseudonym Search), and Shaftesbury follow after; with Berkeley, Clarke, Ferguson, Hartley, Reid, &c., at a third grade. The author finds the English to have been more powerful than any other foreign influence on his countrymen, and otherwise is of opinion that it deserves especially to be traced because "English philosophy is grander and more typical in character than that of any of the modern continental nations, developed as it has been, almost from first to last, in a continuous, organic, and consistent manner". He can only be encouraged to give effect to the disposition he has to turn next to the subject of the English influence on French thought in the same century.

Die Vorgeschichte der Ethnologie. Deutschland's Denkfreunden gewidmet für eine Mussestunde. Von A. BASTIAN. Berlin: Dümmler, 1881. Pp. 132.

Der Völkergedanke im Aufbau der Wissenschaft vom Menschen und seine Begründung auf Ethnologische Sammlungen. Von A. BASTIAN. Berlin: Dümmler, 1881. Pp. 184.

Two vigorous pleas for the necessity of basing the whole science of man upon objective ethnological inquiries, pursued not without the help of subjective analysis but at the same time with the view of correcting and re-casting the conclusions of psychology and philosophy. The one Essay traces the historical rise of the conception of a science of Ethnology; the other develops its fundamental notion of Folk as prior to the individual man, and considers the means of securing by ethnological collections (before it is too late) the only possible insight into whole aspects of human nature. Both Essays are hardly more remarkable for the wealth of curious information poured out by the author from the stores of his reading than for their suggestions of thought.

Das religiöse Bewusstsein der Menschheit im Stufengang seiner Entwicklung. Von EDUARD VON HARTMANN. Berlin: Duncker (London: Trübner), 1882. Pp. 627.

Within less than three years from the appearance of his last great work the author follows up his elaborate survey of the Moral Consciousness by a hardly less extended investigation of the Religious Consciousness of man, viewed in the process of its development. For the present, only the most general outline of the treatment is subjoined: A. Naturalism. I. The awaking of religious consciousness. II. Naturalistic Henotheism. III. Humanistic spiritualisation of Henotheism. IV. Theological systematisation of Henotheism. B. Supernaturalism. I. Abstract Monism or Idealistic Religion of Deliverance. II. Theism (1. Primitive Monotheism; 2. State-religion or the Religion of Heteronomy; 3. Realistic Religion of Deliverance (*a.* The Heterosoteric Religion of Christ; *b.* The Religion of the Son and the Religion of the Spirit)).

Die Willensfreiheit und ihr Verhältniss zur göttlichen Präscienz und Providenz bei den jüdischen Philosophen des Mittelalters. Von Dr. Ludwig Stein. Berlin: Baer, 1882. Pp. 142.

The first of a series of monographs which the author has in view upon the chief points that engaged the attention of the Jewish Schoolmen; beginning with the question of Free-will, considered both in itself and in relation to Divine foreknowledge and providence. At the end of his careful and minute inquiry, the author comes to the conclusion that Jewish Scholasticism, like Scholasticism generally, though much to be regarded for the literature of philosophy and the history of religion, has no intrinsic philosophical importance.

VIII.—MISCELLANEOUS.

Mr. B. Bosanquet writes thus:—

In connexion with Mr. Seth's remarks in Mind XXIV. on the common conception of Hegel as an *a priori* thinker, it may be worth while to point out a misquotation on p. 20 of Lewes's *Problems of Life and Mind*, Vol. I., which should equally be corrected whether it is a misprint or not, for not many people verify references to Hegel. Lewes is mentioning that Hegel regarded the knowledge of Freedom, Mind, God, as not empirical. The German quotation in the footnote continues—"Sie sind auf jenem Boden nicht darum zu finden weil sie der Erfahrung nicht angehören sollten." I cannot but imagine from the context of p. 20 that Lewes at the moment allowed himself to interpret this to some such effect as—"They are not to be found on that ground (*i.e.*, among the empirical sciences), because they cannot belong to experience." Of course this is impossible German. The real words are—"Sie sind auf jenem Boden nicht darum nicht zu finden weil, &c., &c." "The reason why they are not in the range of the empirical sciences is not that they could be supposed beyond experience; for though they are not in sensuous experience, yet all that is in consciousness is experienced." The abruptness with which Lewes's quotation breaks off in the middle of a sentence and with a full stop for a semi-colon seems to indicate that he saw a special point in the clause he quoted. I do not suppose that Lewes's view of Hegel was greatly affected by this one passage; he would find plenty to criticise elsewhere; but it is just worth noting, if my construction is right, that one so well acquainted with German literature should have allowed himself to make this slip, in consequence, I imagine, of feeling sure that he knew Hegel's line by anticipation. The place is in the shorter *Logic*, § 8.

We are requested to make announcement to the following effect:—

The Philosophical Society of Berlin, originally, from 1843, consisting of Hegelians, but now including men of the most different ways of thinking, has decided to devote the surplus of the money collected for a monument of Hegel to the establishment of a "Hegel-foundation" for the promotion of philosophy. In connexion with the foundation, it will award a prize of

450 Reichsmark (£22 10s), on July 1st, 1884, for the best *Historico-Critical Exposition of Hegel's Dialectic Method.* The subject is thus farther specified :—(1) *Development* of Hegel's method in his writings : How is Dialectic related with him to Logic and Metaphysic ? (2) *Comparison* with the methods of his predecessors : Does his method arise out of them ? (3) *Value* and *Importance* of the method : Does it fulfil the requirements of a philosophical method ? Essays, which may be written in German, French, English, or Italian, must be sent, post free, before Dec. 31st, 1883, to one or other of the Secretaries of the Society—Professor Dr. Michelet, Bülow-Str. 28, S.W., Berlin, or Stadtgerichtsrath A. D. Meineke, Kurfürsten-Str. 56, W., Berlin—with a motto at the head, and, in a sealed cover, the same motto with name and address of the writer. The sealed covers sent with all but the prize-essay will be burned. The MS. of the prize-essay will be the property of the Society, but the right of printing belongs to the author. Herr Custos Dr. Ascherson, of the University Library, Berlin, will supply copies of the printed program.

Prof. Fechner has received a large number of replies to the schedules of questions he sent out in 1879 (through the "Akademisch-Philosophischer Verein" of Leipsic University), with a view to obtaining statistical data on Associations between Vowel-sounds, on the one hand, and Colours, the Major and Minor Musical Keys and the four Temperaments, on the other. He will proceed to work them up, as soon as he has completed another research on which he is now engaged.

A series of "German Philosophical Classics for English Readers and Students," edited by Prof. George S. Morris, of the University of Michigan, &c., is announced from Chicago (S. C. Griggs & Co.), to begin to be published early in 1882. Each volume will be a critical exposition of some one masterpiece of German philosophy. Prof. Adamson undertakes Kant's *Critique of Judgment* ; Prof. John Watson, Schelling's *Transcendental Idealism.* There will be ten or twelve volumes in all, confined to works of Leibnitz *(New Essays)*, Kant, Fichte, Schelling, and Hegel.

Professor Fortlage of Jena died on the 8th of November, at the age of 75.

Mr. John MacCunn, M.A., of Balliol College, Oxford, has been appointed to the Chair of Logic, Mental and Moral Philosophy, and Political Economy in the new University College of Liverpool.

The Chair of Moral Philosophy in Trinity College, Dublin, has become vacant through the appointment of Mr. W. H. S. Monck to the Chief Clerkship of the Court of Bankruptcy, Ireland.

The Journal of Speculative Philosophy.—Vol. XV. No. 2. W. T. Harris—Thoughts on the Basis of Agnosticism. A. Arnold—The Unification of Science. Hegel—On the Absolute Religion (trans.). Schelling—On the Science of the Fine Arts (trans). W. Preyer—On Psychogenesis (trans.) Notes and Discussions. Book Notices.

Revue Philosophique.—VIme Année, No. 10. E. Rehnisch—Hermann Lotze, sa vie et ses œuvres (trans.). A. Fouillée—Critique de la

morale de Kant (fin). H. Spencer—La société militaire (trans.). G. Tarde —La psychologie en économie politique (fin). Note (L. Arréat—Sur la nature du syllogisme). Analyses et Comptes-rendus (J. Sully, *On Illusions*, &c.). Rev. des Période. No. 11. V. Brochard—La logique de J. Stuart Mill (i.). H. Spencer—La société industrielle (trans.). Discussion (J. Delbœuf—Le sentiment de l'effort, d'après W. James). Analyses et Comptes-rendus (F. Y. Edgeworth, *Mathematical Psychics*, &c.). Notices bibliographiques. Rev. des Période. No. 12. Ch. Richet—Irritabilité et réaction cérébrales. V. Brochard—La logique de J. Stuart Mill (fin). P. Tannery—L'éducation platonicienne. Analyses et Comptes-rendus (C. S. Peirce, *On the Algebra of Logic*, &c.). Rev. des Période. Correspondance (P. Jacoby—La sélection et l'hérédité chez l'homme).

La Critique Philosophique.—Xme Année. Nos. 32-43. C. Renouvier—Politique et socialisme ; (xii.) La question du progrès ; Saint-Simon et la physicisme (33) ; Descartes, Spinoza et Leibnitz (33) ; L'idéalisme et l'infinitisme de Spinoza (34) ; A propos de Comte (37) ; Notes en réponse à M. Shadworth Hodgson (40-41—Mr. Hodgson's article on M. Renouvier's Psychology in Mind XXII. being now in process of reproduction in *La Crit. Phil.* from No. 38). F. Pillon—L'importance des études philosophiques dans l'éducation (35) ; M. Bluntschli et ses théories de droit international (41) ; J. Milsand—A propos de Comte et du positivisme (37, 40) ; C. Secrétan—Le positivisme et la science expérimentale de l'Abbé de Broglie (43).

La Filosofia delle Scuole Italiane.—Vol. XXIV. Disp. 1. A. Marconi—La spiritualità dell'anima umana (i.). G. Fontana—*I Sensi e l'Intelligenza* par A. Bain. G. Zuccante—Del metodo di filosofare di Socrate (fine). Bibliografia (J. M'Cosh, *The Emotions*, &c.). Disp. 2. T. Mamiani —Della scienza economica. A. Marconi—La spiritualità dell'anima umana (fine). L. Ferri—Osservazioni e considerazioni sopra una bambina. Bibliografia (A. Fraser, *Berkeley*, &c.).

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PHILOSOPHISCHE STUDIEN.—Herausgegeben von Wilhelm Wundt. Bd. I., Heft. 1. W. Wundt—Ueber psychologische Methoden. M. Friedrich —Ueber die Apperceptionsdauer bei einfachen u. zusammengesetzten Vorstellungen. J. Kolbert—Untersuchungen über den Zeitsinn. W. Wundt—Ueber die mathematische Induction. [This new publication (pp. 147, Leipzig, Engelmann) comes to hand, as we are going to press. Though it appears without any such announcement, we understand that the present issue will be succeeded by others at intervals of three months or thereby. Practically, it is the first No. of a new philosophical Journal.]